D-Link®

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User Manual

mydlink™ Network Video Recorder with HDMI

DNR-312L

Manual Overview

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Product Overview
Package Contents

- D-Link DNR-312L mydlink Network Video Recorder with HDMI output
- Ethernet Cable
- Power Adapter
- Manual and Software on CD
- Quick Install Guide

Note: Using a power supply with a different voltage than the one included with your product will cause damage and void the warranty for this product.

If any of the above items are missing, please contact your reseller.

System Requirements

Hardware Requirements	• One 3.5" SATA hard disk drive
Network Requirements	• Broadband Internet connection (for remote access) • Network camera(s) (refer to the D-Link website for a list of supported cameras) • 10/100/1000 Mbit Ethernet switch or router
Web-based Configuration Utility Requirements/Remote PC Minimum Requirements	Computer with the following: Computer with Microsoft Windows 7, 8, Vista, or XP (with Service Pack 3); Mac OS X (10.7 or above) PC with Pentium 4 – 2.4 GHz or above; at least 512MB RAM Internet Explorer 7, Firefox 12, Chrome 20, or Safari 4 or higher. Existing 10/100/1000 Ethernet-based network Make sure you have the latest version of Java installed. Visit www.java.com to download the latest version.

Introduction

Congratulations on your purchase of the DNR-312L mydlink NVR.

The DNR-312L is a standalone wired Network Video Recorder (NVR) which supports multi-channel network cameras with M-JPEG, MPEG4 or H.264 recording to a high-speed 3.5-inch SATA hard disk. Thanks to the powerful embedded system, the NVR can record video from network cameras located in local or remote sites without requiring your PC to be turned on.

Empowered by mydlink technology, the DNR-312L can be easily set up for remote access over the Internet. It supports real-time monitoring and playback from anywhere via an Internet browser. The triplex function can keep recording video while you view live video or play back recordings at the same time. The NVR's complete video management, display, and playback ability make it a convenient and reliable video recorder.

Features

Comprehensive IP Surveillance Solution

- **Total Solution:** The DNR-312L is a standalone network video recorder capable of 24/7 recording without a PC. The NVR can manage multiple network cameras, providing direct access to view live video and play recorded data through the Internet from anywhere, anytime.
- **Easy to Use:** A user-friendly GUI simplifies network and camera setup, allowing you to easily access multiple cameras for viewing, recording, playback, and configuration.
- **Centralized Interface for Configuration:** The DNR-312L provides a flexible and economic alternative to manage and configure multiple network cameras on a centralized device.
- **Megapixel Resolution Support:** The DNR-312L supports high-resolution megapixel recording for vivid video with high clarity.
- **Empowered by mydlink technology:** The DNR-312L can be easily set up for Internet access. It supports real-time monitoring and playback from everywhere via your Internet browser. The recording is stored on your own HDD rather than on an online cloud, providing both security and privacy.

Complete Network Functionality

- **PPPoE Support:** The NVR can connect to the Internet via an ADSL modem over Ethernet.
- **DDNS Support:** Dynamic DNS is a solution for users without a fixed IP address. With the DDNS service, you can connect to the NVR over the Internet using an easy-to-remember domain name.
- **NTP Support:** Maintaining an accurate record of time is essential if recorded data is to be used as evidence. To ensure that the time recording is always accurate, the NVR can update the system clock from an Internet server using the Network Time Protocol (NTP).
- **DHCP Server:** The NVR can act as a DHCP server for easy deployment when placed in a basic network that has no existing DHCP server.
- **SNMP:** The Simple Network Management Protocol (SNMP) is an application layer protocol that facilitates the exchange of management information between network devices. It helps network administrators to remotely manage network devices and find, solve network problems with ease.
  The SNMP consists of the following three key components:
  - » Manager: Network-management station (NMS), a server which executes applications that monitor and control managed devices.

» Agent: A network-management software module on a managed device which transfers the status of managed devices to the NMS.
» Managed device: A network node on a managed network. For example: routers, switches, bridges, hubs, computer hosts, printers, IP telephones, network cameras, web server, and database.

Fully Functional Recording

- **Flexible Recording Schedule:** Once cameras have been set up, a highly configurable scheduling system allows for continuous recording or recording during specifically allotted time frames. Each camera can be set to record independently at preset intervals. It also provides event recording based on specific triggers.
- **Recording Automatic Overwrite:** The NVR can be configured to overwrite the oldest data automatically when hard disk space runs out, allowing for continuous and uninterrupted recording.
- **Recording Stop Alert:** The NVR also provides the option to stop recording when the hard disk is full. When the disk reaches capacity, a notification can be sent via e-mail and audible alarm.

Comprehensive Data and Security

- **Auto Boot after Power Recovery:** The NVR will boot up automatically once the power is restored after a power outage.
- **Access List Control:** Users can specify safe and blocked IP addresses to filter external connections, increasing data security.
- **Multiple User Privilege Control:** Administrators may also choose access privileges for users by specifying the cameras they may have access to for live view, playback, audio, and PTZ functions.
- **Backup Recording Data:** Recorded data is stored in a secure database. This recorded data can be backed up to additional storage locations periodically or whenever needed.

Flexible Event Management

- The NVR can monitor trigger events from all cameras, such as from motion detection. These can be used to trigger e-mail notifications and recordings, all centrally handled by the NVR.

Instant Live View

- **Full Screen:** Enlarge the display to view full-screen live and recorded video views.

- **Drag and Drop GUI:** With multiple channels enabled, users can change channels by dragging and dropping.
- **Camera Name and Status on OSD:** Camera name and recording status are displayed on the OSD (On Screen Display) to help identify the current camera's name and recording status.
- **PTZ:** Users can control pan/tilt/zoom (PTZ) functions for supported cameras from within the interface using the provided buttons or by directly clicking on the video.
- **Audio Support:** Audio picked up by a camera can be played back.
- **Preset Point:** Camera position presets allow you to instantly restore a previously saved view.
- **Digital Zoom:** Videos can be enlarged by digital zoom.

Intelligent Playback

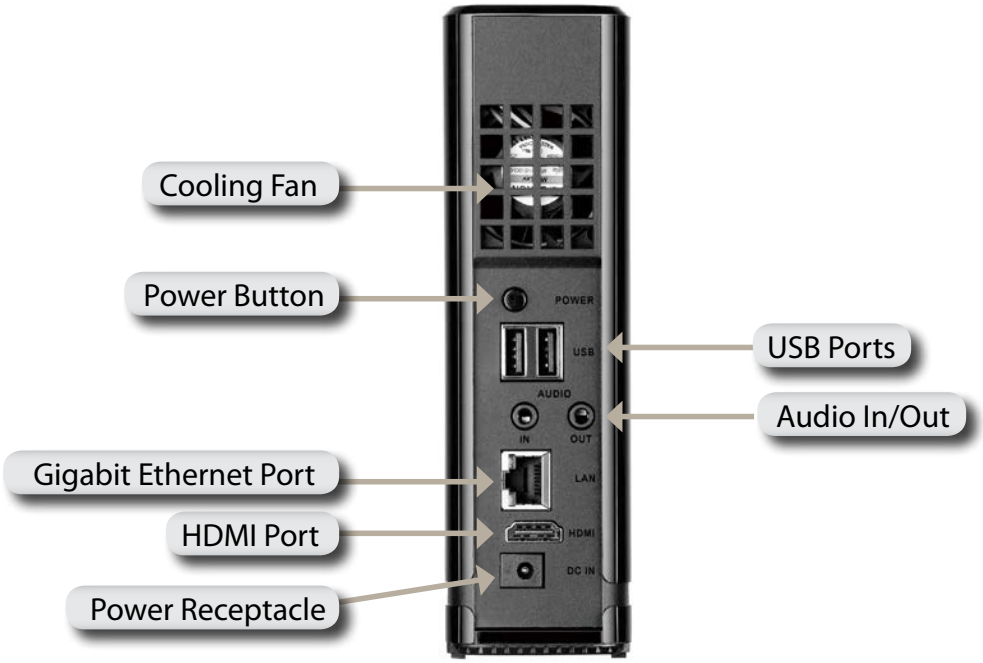
- **AVI Outputs:** Raw video can be exported to AVI format.
- **Playback Speed Control:** Playback speed control allows for fast forward or fast rewind, and step playback can display video one frame at a time.

Hardware Overview

Front View

COMPONENT	DESCRIPTION
Power LED	A solid green light indicates the device is powered on. This light will blink during bootup. If the power LED is off, the device is not powered on.
HDD LED	A solid green light indicates that the hard drive is installed properly. This light will blink during the read/write process. If the light is red, this indicates the hard drive is installed but failed.
Network LED	A solid green light indicates that the device is connected to your network properly. This light will blink during data transfer. If the light is off, this indicates the device is not connected to your network.

Rear Panel (Connections)



COMPONENT	DESCRIPTION
Cooling Fan	The cooling fan cools the hard drives.
Power Button	Turns the NVR on and off.
USB Ports	Connect a mouse for local control, or connect a USB storage drive.
Audio In/Out	Connect a microphone to the Audio In port for use 2-way communication with your camera(s). Connect external speakers to the Audio Out port for audio playback. Please note that your camera(s) must support this feature.
Gigabit Ethernet Port	Connect the device to your router or switch using an Ethernet cable.
HDMI Output	Connect to your TV or monitor using an HDMI cable.
Power Receptacle	Connect the supplied power cord to the receptacle.

Installation
NVR Software CD

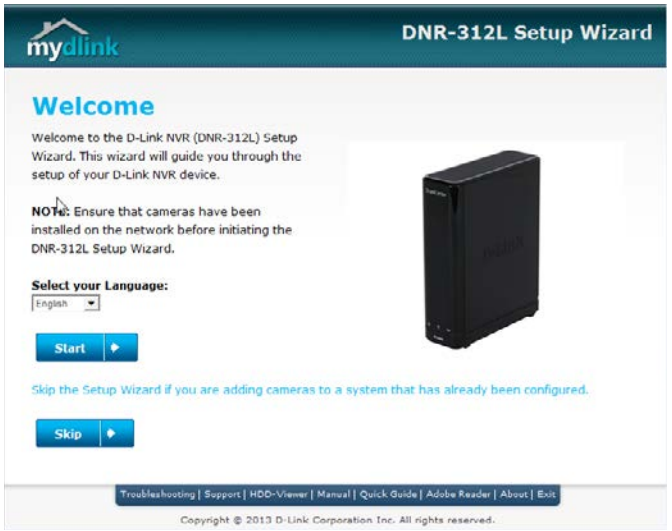
The Setup Wizard will walk you through installing and configuring your DNR-312L, including installing the hard drive and connecting it to your network.

Setup Wizard - Windows

The following instructions show you how to set up the NVR using your Windows computer. If you are using a Mac computer, refer to"Setup Wizard - Mac" on page 22.

Simply click **Start** to go through the Setup Wizard, which will guide you through the installation process from connecting your hardware to configuring your NVR.

Note: The computer used to access the NVR must be on the same subnet as the NVR. If your network is using a DHCP server, the NVR will automatically be in the same subnet.



Note: The computer used to access the NVR must be on the same subnet as the NVR. If your network is using a DHCP server, the NVR will automatically be in the same subnet.

Installing the Hard Drives

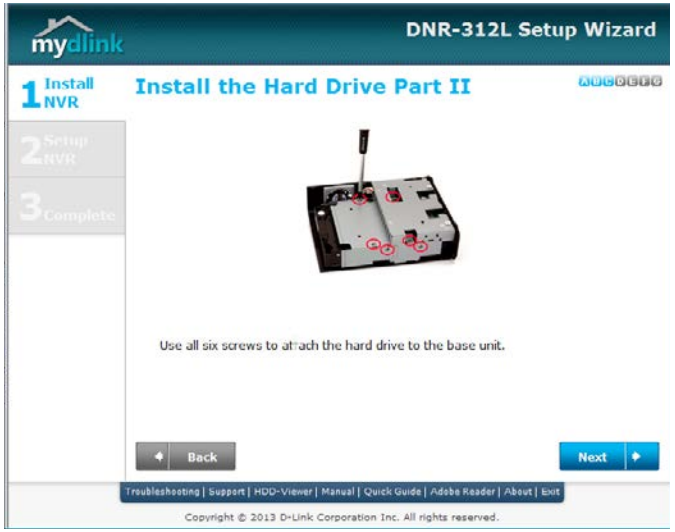
This step shows you how to open your NVR and install a hard drive. Open your NVR by sliding the cover back and pulling it out.

Click **Next** to continue.

Slide the hard drive into the open hard drive bay of your device.

Click **Next** to continue.

Use all six screws to attach the hard drive.



Once the hard drive is installed, reattach the top cover by aligning the hooks to the notches clipping the cover into place.

Click **Next** to continue.

Secure the cover by sliding it downwards and screwing the device firmly to the base.

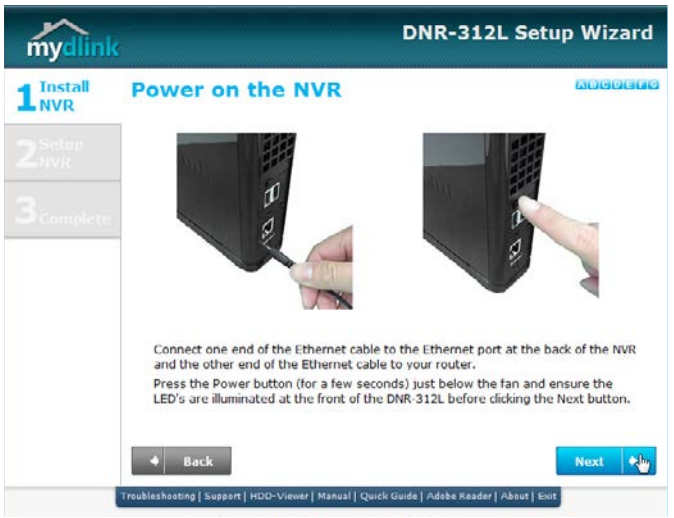
Click **Next** to continue.

Connect one end of the Ethernet cable to the port at the back of the NVR and the other end of the Ethernet cable to your router.

Click **Next** to continue.

Power and Device Selection

First, connect the power adapter to the power receptor on the back of the NVR. Press the power button to turn on the NVR. Click **Next** on the Setup Wizard to continue.

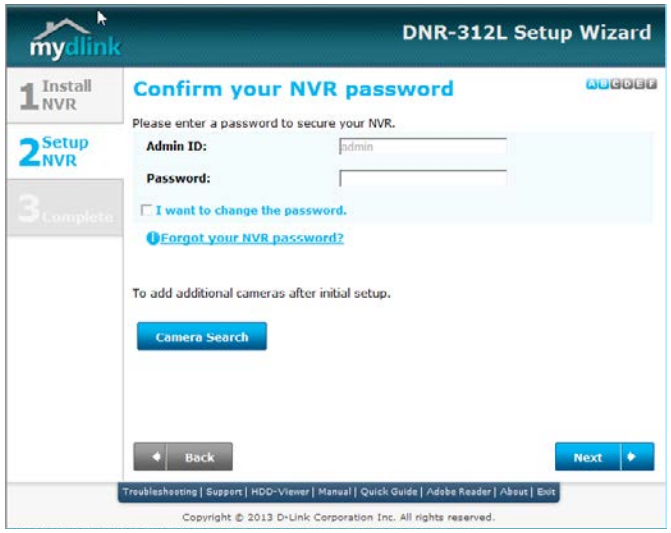


Select your device from the device selection area.

Admin Password

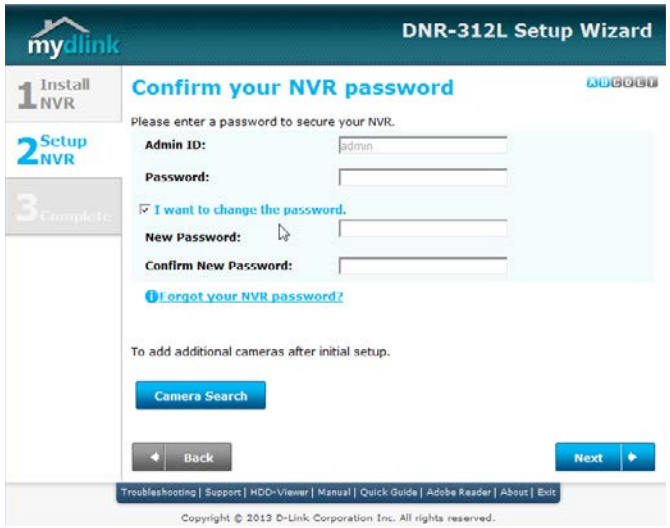
This window requests the Admin (administrator) password. If this is the first installation of this device, then leave the password field blank. By default the Admin ID is "admin" and the password is blank.

Click **Next** to continue.



In this step you can create a new password for the Admin username. It is strongly recommended you set a password.

Click **Next** to continue.



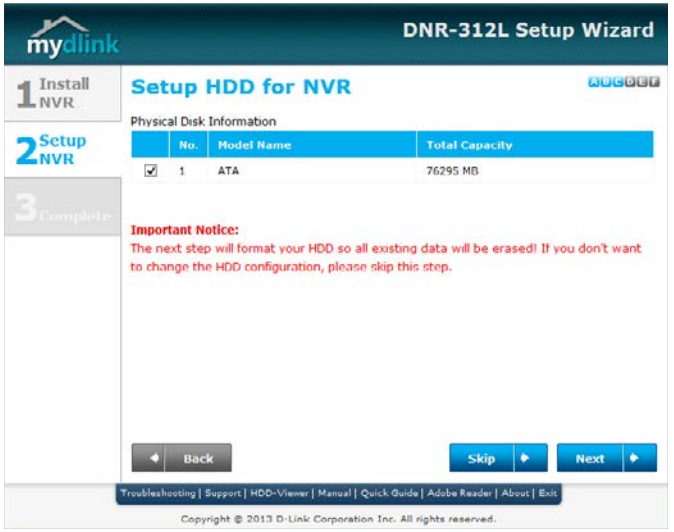
This step will allow you to set the NVR's date and time, NTP server, time zone and daylight saving time.

Click **Next** to continue.

Set Up Your HDD

The wizard will scan for attached storage and ask if you wish to format the devices found. Formatting the device will erase all data on the hard drive.

Note: Select **Skip** if you are unsure of which settings to choose.



Click **Yes** to format the hard drive.

Warning: all data on the NVR will be erased.

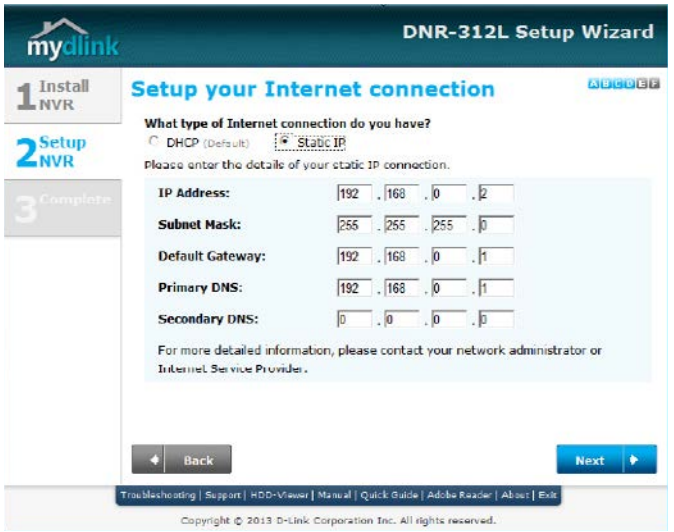
Click **Next** to continue.

Set Up Your Internet Connection

Setup Wizard will try to automatically connect to the Internet.

Note: If the NVR is not able to connect to the Internet, the Setup Wizard will allow you to set up a PPPoE or Static IP for Internet connection. Please contact your ISP for setup details.

Click **Next** to continue.



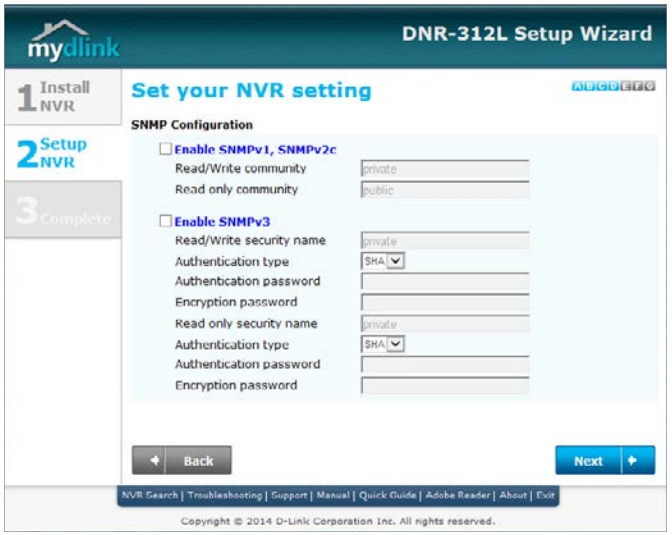
If you don't have the Internet connection information at this time, or you don't want to connect to the Internet, the Setup Wizard will guide you to go through the Local Access process later.

Click **Next** to continue.

Configure SNMP

This step will allow the user to set up the SNMP parameters for NMS monitoring DNR-312L status.

Click **Next** to continue.



Adding Your NVR to a mydlink Account

mydlink is a secure website that enables you to access and control home devices such as Routers, Storage devices and IP Surveillance Cameras via your own personal account.

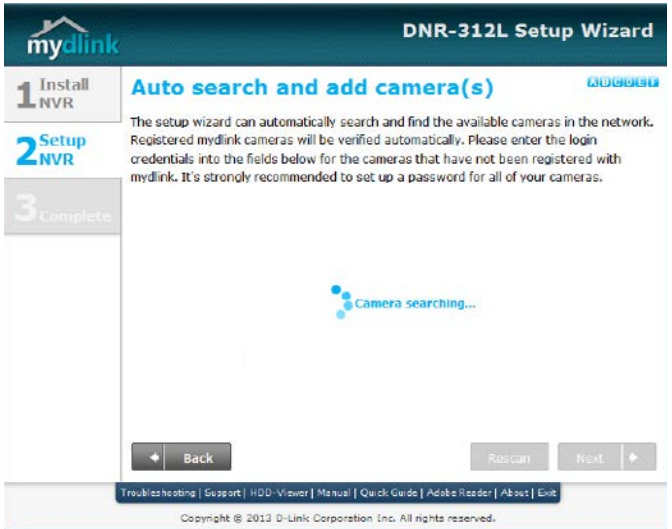
The wizard will guide you through the process of connecting your NVR to a mydlink account. If you already have a mydlink account, enter the correct configuration information and click **Next** to continue, otherwise select **No, I need to sign up for a new account** or **I don't want to sign up right now** and follow the instructions.

Click **Next** to continue.

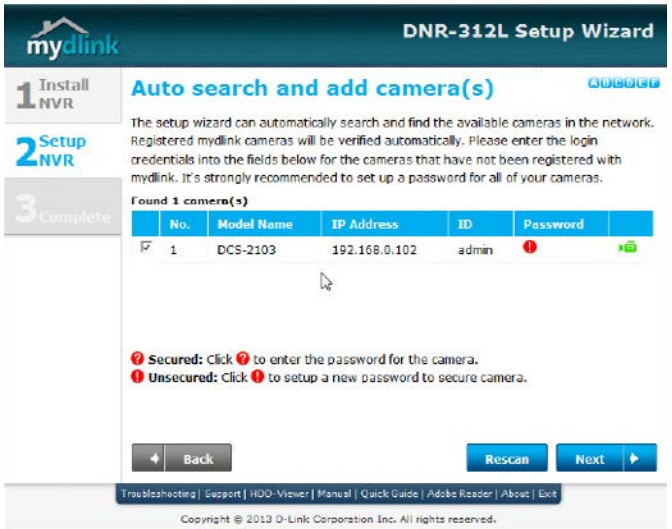
Search for Cameras

The wizard will scan for all available cameras attached to your network. Registered mydlink cameras will be verified automatically. After the wizard has completed the scan for all available cameras attached to your network, click on the red icons to confirm/enter the password for each camera.

Click **Next** to continue.

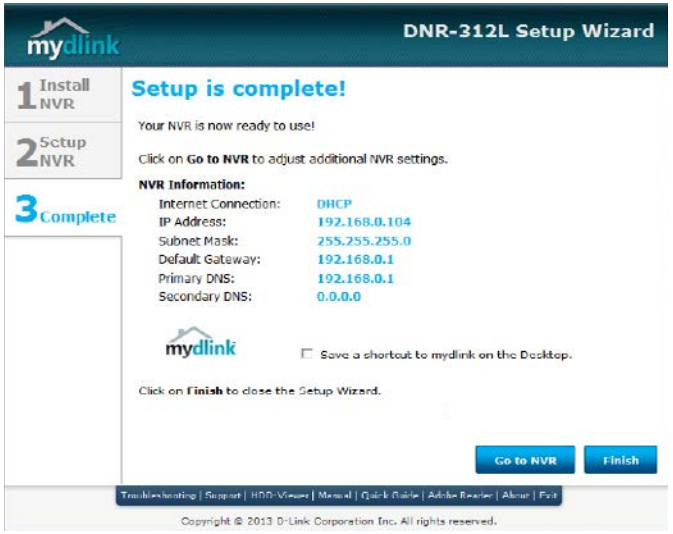


You can preview the discovered cameras by clicking on the green camera icon, or click **Next** to continue



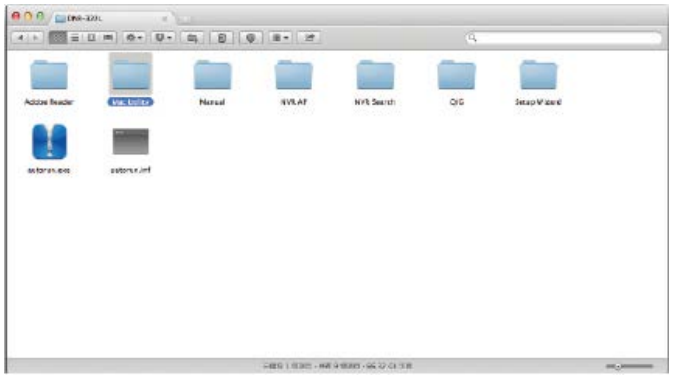
The final window of the installation wizard will show you a summary of your NVR settings. Your device is now installed and ready for use.

Make a note of the details presented and click on **Go to NVR** to log in to the NVR for further configuration, or click **Finish**.



Setup Wizard - Mac

The following instructions show you how to set up the NVR using your Mac computer.



After you have inserted the CD into your computer, go to the CD drive directory, and double-click the Mac Utility folder to enter.

Double-click the DNR-312L Setup Wizard file to start the Setup Wizard, which will guide you through the installation process from connecting your hardware to configuring your NVR.

Simply click **Start** to go through the Setup Wizard, which will guide you through the installation process from connecting your hardware to configuring your NVR.

Note: The computer used to access the NVR must be on the same subnet as the NVR. If your network is using a DHCP server, the NVR will automatically be in the same subnet.

mydlink
mydlink Website

After registering your NVR with a mydlink account in the NVR Setup Wizard, you can remotely access your NVR from **www.mydlink.com** from a computer, tablet, or smartphone.

After you log in to your mydlink account, you will be taken to the **My Devices** page.

To connect to your NVR, click on the **Connect** button and provide your password to complete the login process. After you have connected to the NVR, you will be taken to the Live Video page. (Refer to"Live Video" on page 38)

NVR Status

Here, you can see the online status of each NVR. Your online status may be one of the following:

A green checkmark indicates that your NVR is online and ready to use.

A yellow exclamation point indicates that your NVR is online, but the NVR password has changed. You will need to enter your new NVR password to access your NVR again.

A red X indicates that your NVR is offline and currently cannot be accessed remotely.

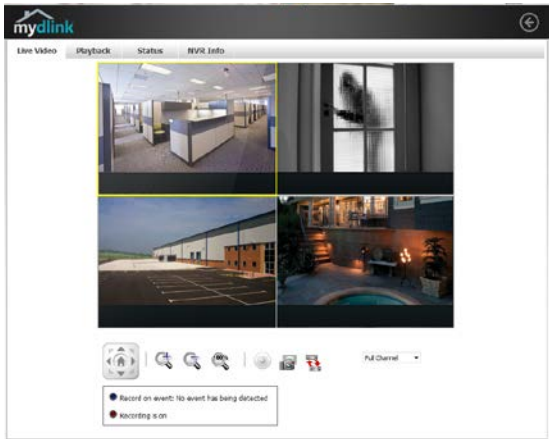
If your NVR is offline, try the following:

- Check to make sure that the Internet connection to your NVR is working properly.
- Try restarting your Internet router.
- Check your cable connections and make sure they are connected securely.
- Check to make sure that the LED on your NVR is lit solid green.

If you still cannot access your NVR, reset your NVR and run the NVR Setup Wizard again from the CD-ROM included in your package.

Live Video

After you have connected to your NVR, the Live Video tab will be selected by default and will display the Live Video feed. You can choose a different camera from the drop down list, or you can choose to view all the available channels.

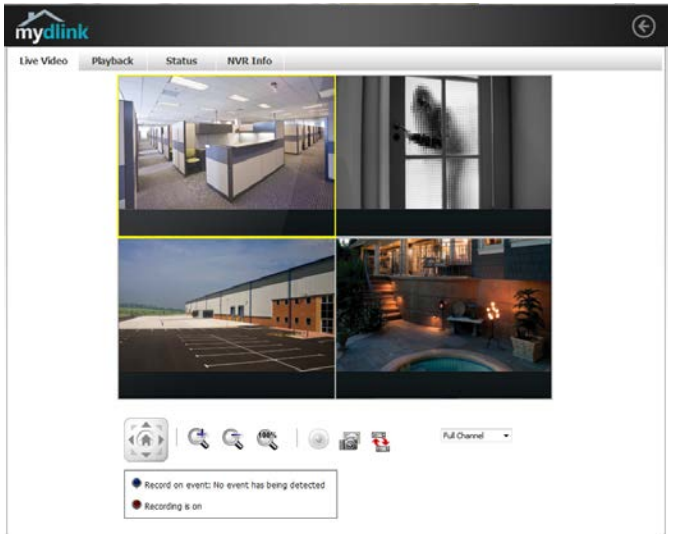


A notice is displayed below the controls if any events have been recorded, or if the NVR is currently recording.

The available controls are detailed below.

	Control Pad	This control pad can be used to pan, tilt, and zoom (PTZ) a dome camera, or electronically pan, tilt, and zoom (PTZ) within the camera's predefined view area, if one has been defined.
	Zoom Control	Use the + and - buttons to zoom in or out.
	Actual Size	Use this control to view video in its native resolution.
	Record	Use this control to start/stop recording.
	Save to Image	Use this option to save a snapshot image.
	Glance	Use this option to toggle glance mode.

Playback

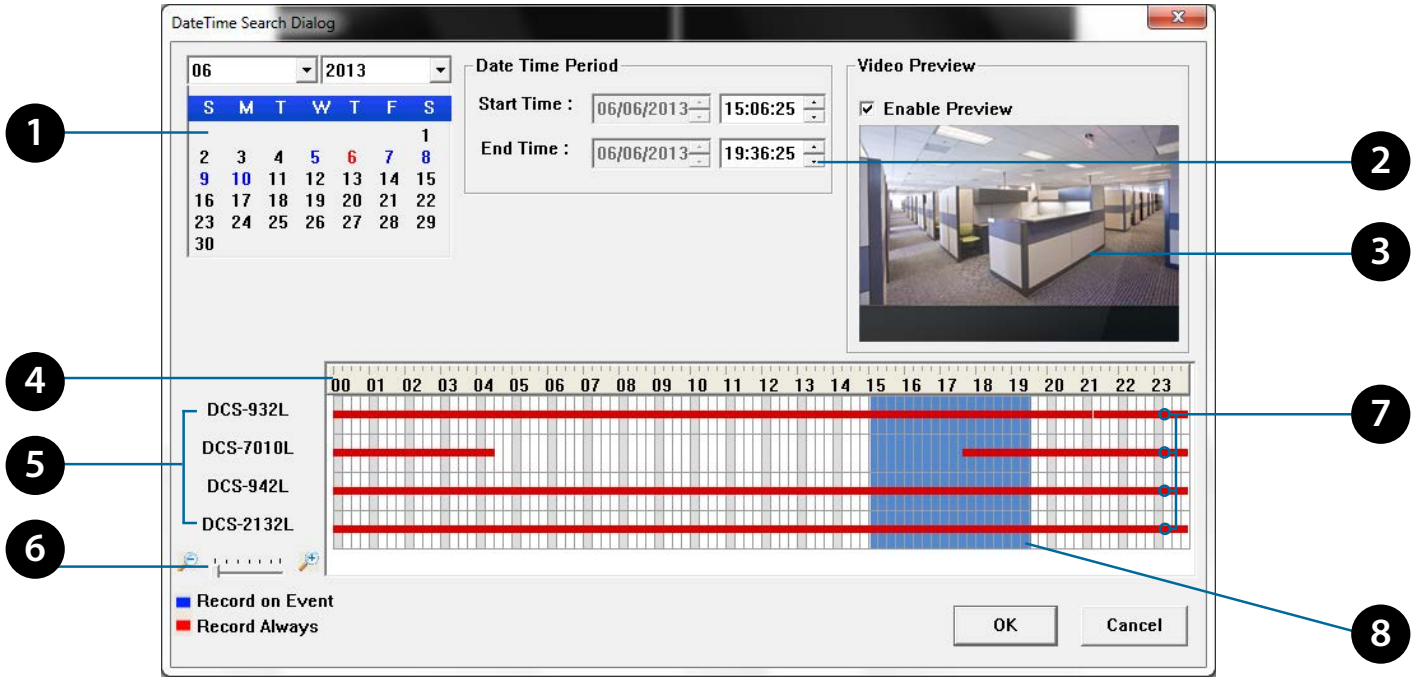


The Playback tab enables you to review pre-recorded video. The available playback controls are detailed below.

	Playback Seeker	Use the playback seeker to quickly jump to a specific point in the recording.
	Volume Control	Adjust the slider to increase or decrease the audio volume.
	Open Recording	Click on this control to open the saved recordings search dialog. Refer to "Open Recording" on page 27.
	Pause Playback	Use this control to pause playback.
	Stop Playback	Use this control to stop playback.
	Step Back/Forward	Use these controls to pause playback and either step back one frame or advance forward by one frame.
	Speed Down/Up	Use these controls to slow down or speed up playback.
	Zoom Control	Use the + and - buttons to zoom in or out.
	Actual Size	Use this control to view video in its native resolution.
	Save to Image	Use this option to save a snapshot image.

Open Recording

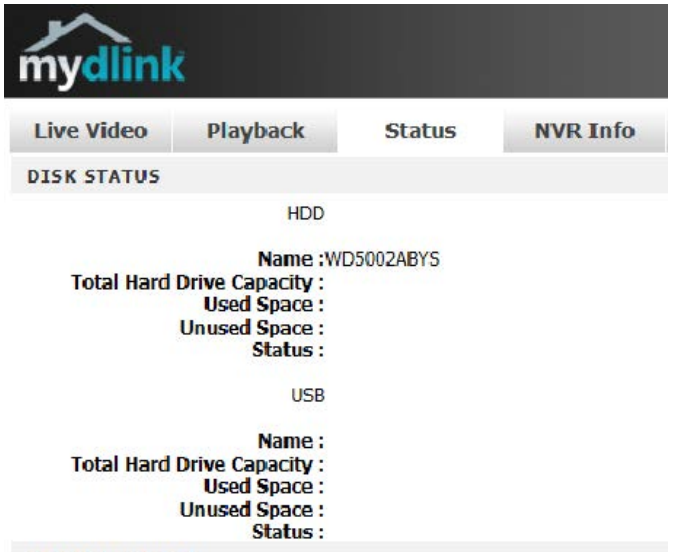
Click the **Open Recording** button to access the Date-Time Panel and select the video recordings which you would like to review.



1	Date Selection Area	Select the year, month and day of the recording you wish to view. Dates with recordings available for playback are highlighted blue.
2	Time Range Selection	Select a beginning and end time for the recording you wish to view.
3	Video Preview	When Enable Preview is checked, this area will display a preview.
4	Timeline	This timeline will adjust according to the level of zoom selected.
5	Available Streams	This area lists the recording devices available.
6	Zoom Slider	Use the zoom slider control to zoom in and out of the timeline.
7	Available Recordings	Available recordings are shown in the timeline. Blue bars indicate an event was recorded. Red bars indicate the camera is set to always record.
8	Selected Period	Click within the timeline to select a recording period.

Status

The Status tab shows information about storage drives and cameras connected to the NVR.



Name: This shows the name given to the storage device attached to the HDD or USB port.

Total Hard Drive Capacity: This shows the total amount of storage space available on the storage device attached to the HDD or USB Port.

Used Space: This shows the used storage space of the storage device attached to the HDD or USB Port.

Unused Space: This shows the amount of space available for recording on the storage device attached to the HDD or USB Port.

Status: This shows if the storage device attached to the HDD or USB port is currently being recorded on.

NVR Info

The NVR Info tab shows you information about your NVR.

Device Name: The Device Name is a unique name that can help you to identify your NVR.

mydlink No.: Displays the mydlink number of your device.

Model Name: Displays the model name of your device.

MAC: Displays the MAC address of your device.

NVR activated on: Displays the time and date that your device was added to mydlink.

Advanced Setting: This section takes you to the login page for the NVR's Web GUI Interface. After you log in, you can adjust advanced settings for the NVR.

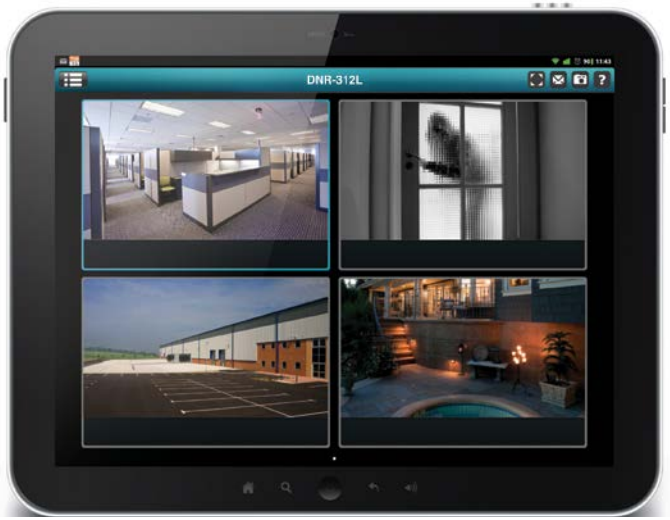
mydlink View - NVR App

Search for **mydlink View - NVR** in the App Store or Google Play to download and install the free app on your smartphone or tablet.

The mydlink View - NVR app requires iOS version 5.1.1 or above or Android version 4.01 or above.

Once the download has been completed, launch the "mydlink View - NVR" app and log in to your mydlink account. (Refer to "Adding Your NVR to a mydlink Account" on page 19 to learn how to add the NVR to your mydlink account.) Select your DNR-312L from the device list to access the live video from the connected cameras.

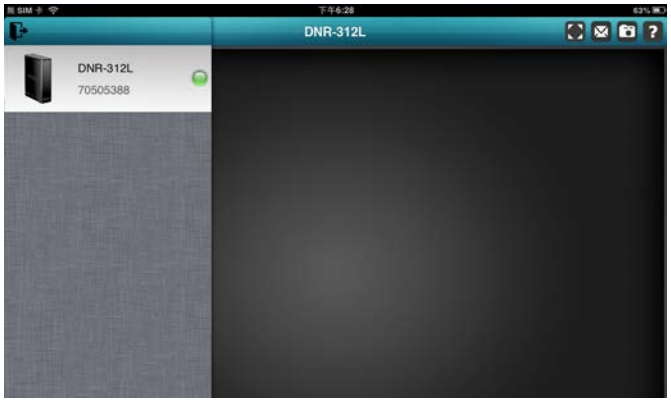
Now you can remotely access the live video, playback recorded videos, and manually enable or disable recording.



First Use - Select Your Device

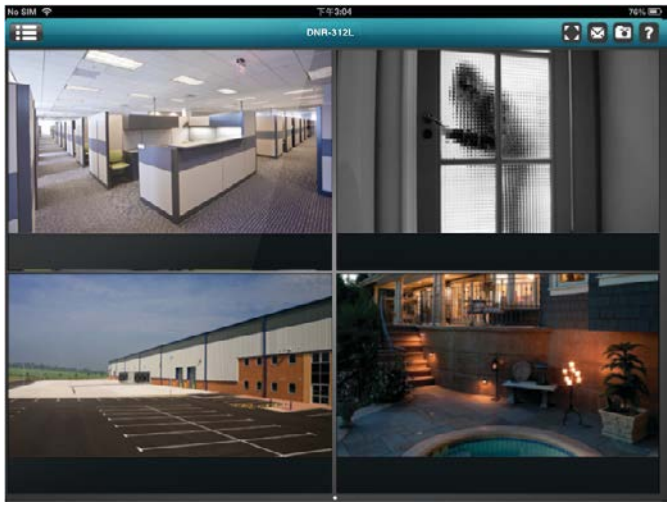
Before using the mydlink View - NVR app for the first time, please ensure to add your DNR-312L to your mydlink account first.

After starting the mydlink View - NVR app, your DNR-312L will be displayed in the My Device list. The app will connect to your DNR-312L, and you can then view live video and playback from your recordings archive via your device.



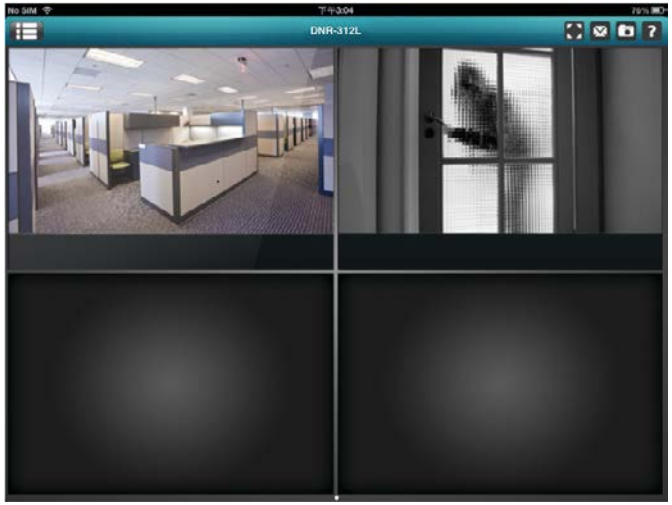
Live View

To view your camera feed on a tablet or smart phone, tap on the DNR-312L icon and the mydlink View-NVR will open the Live video panel.



iPhone/iPod Touch Grid View

On an iPhone or an iPod Touch, mydlink View-NVR can display the Device List of your mydlink account on the main screen. Tap on your DNR-312L to enter the 4-grid view.

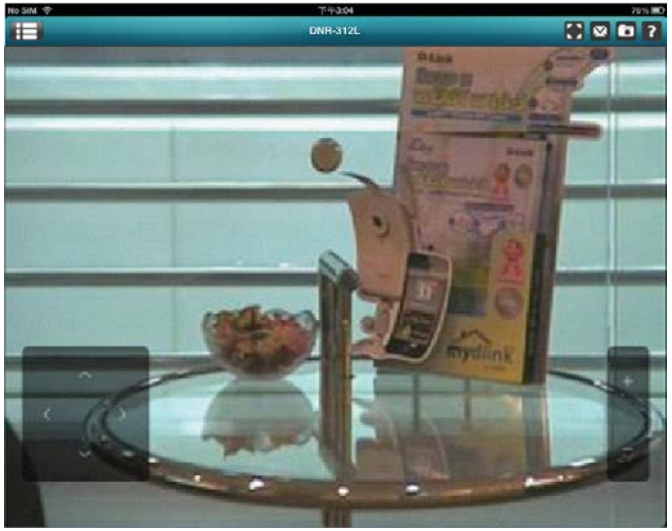


iPad Grid View

On an iPad, mydlink View-NVR can expand and shrink the Device List of your mydlink account at the left-hand side of the panel. Click on your DNR-312L to enter live the video view. Double-tap on one of the channels to start a single-channel live video. Double-tap again to return back to the grid view.

Channel selection

- In single channel mode, you can swipe through the video channels to see the previous or the next video channel of the cameras connected to the DNR-312L.
- Double-tap on one of the channels to select a single-channel live video stream.
- Tap on the "My Device" button to return to the Device List of your mydlink account.

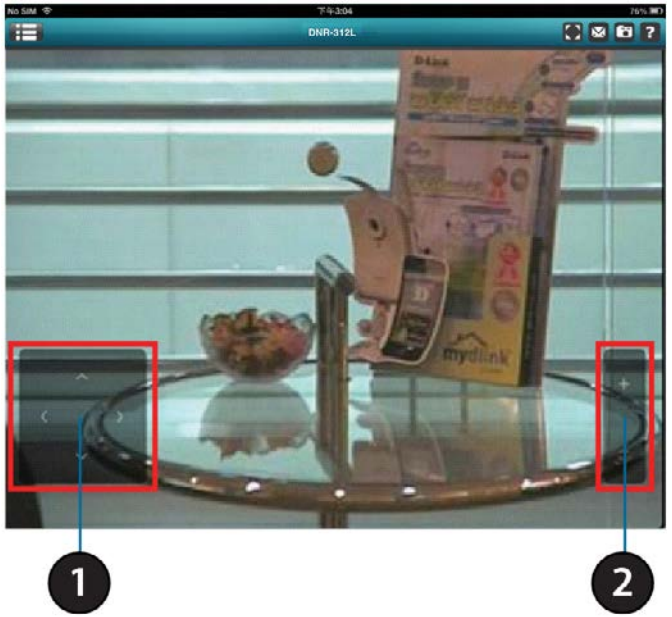


Pan Tilt Zoom (PTZ)

To access PTZ controls, use a two finger tap while streaming a single channel video stream and the PTZ control panel will appear.

Use a two finger tap on the video stream again to disable the PTZ control panel.

Note: The PTZ control function must be enabled on the camera connected to the DNR-312L in order for mydlink View-NVR to control the PTZ function. See "Live Video" on page 37 for more information.



Video Stretch

In live view or playback archive mode, you can tap on the video stretch button ( )to stretch the video to full screen. Tap the button again to disable stretch.

Note: This function may alter the aspect ratio of the video stream.

Snapshot

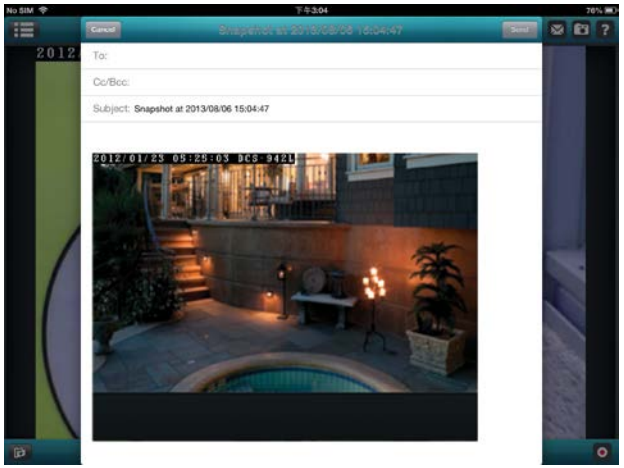
While streaming a single channel, tap the Snapshot button ( )to capture a snapshot. The image will be saved to the device's camera roll.

While viewing video in grid view, tap the Snapshot button ( ) to take snapshots of all the channels. The images will be saved to the device's camera roll.

Note: The saved snapshot will be at the original resolution of the IP camera video.

E-Mail

While streaming a single-channel video, tap the e-mail button ( ) to capture a snapshot and insert it into an e-mail. Complete the **To**, **Cc/Bcc** fields as required and click **Send** to send the e-mail with snapshot attached or click **Cancel** to cancel the operation.



While viewing in grid view, tap the e-mail button ( ) to capture a snapshot of all the channels and insert all the snapshots into a single e-mail. Complete the **To**, **Cc/Bcc** fields as required and tap **Send** to send the e-mail with snapshot attached or tap **Cancel** to cancel the operation.

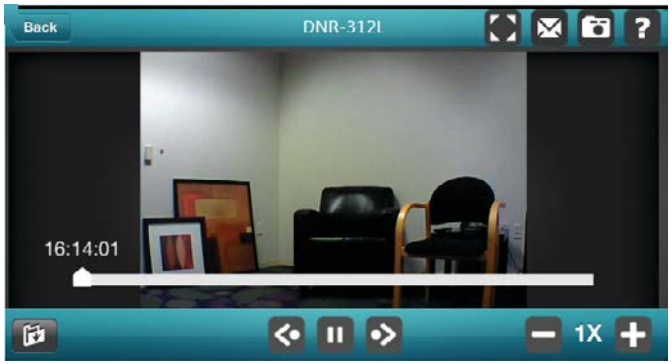
Video Playback

The video playback function is only available in single view mode. Tap the open recording button ( ) while in single channel mode to bring up the playback selection panel.

Use the playback selection panel to scroll through your video recordings archive.

Scroll to the date and time you wish to play back, and tap **Play**.

Video Playback Control



While the video recording is playing in single view mode, tap the playback control button ( ) to control the direction of the video playback.

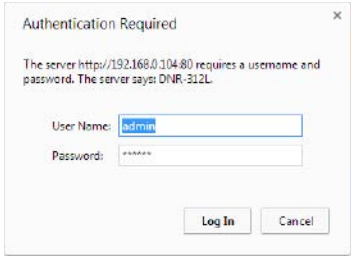
The control buttons are:
Step backward for 1 second ( )
Play/pause toggle ( )
Step forward for 1 second ( )

Use the speed panel (32X) to control the speed of video playback from x1 through x32 speed.

Note: The quality of display performance will vary according to network bandwidth availability.

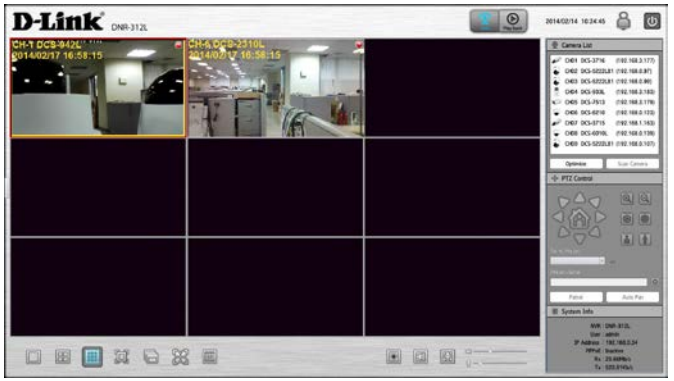
Configuration

You can access the configuration interface for the NVR on your PC by running the **NVR Search Utility** or manually opening a web browser and enter the IP address of your NVR. Enter **admin** as the username and enter password you created during setup.



You can also control and manage the NVR locally by connecting it to a TV or monitor through HDMI and plugging in a USB mouse to control the interface.

This section will enable you to configure and view the live video from your network cameras.



LIVE VIDEO - Shows the live video of network cameras and controls PTZ functions.

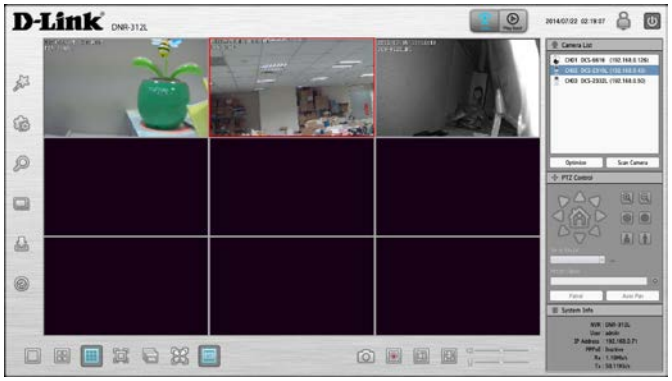
PLAYBACK - Displays recorded video and exports snapshots or video.

LOG OUT -Logs out of the NVR

SHUT DOWN - Shuts down the NVR.

Live Video

This section will describes configuring and viewing live video from your network cameras, the functions of the live video screen, and the PTZ functions.



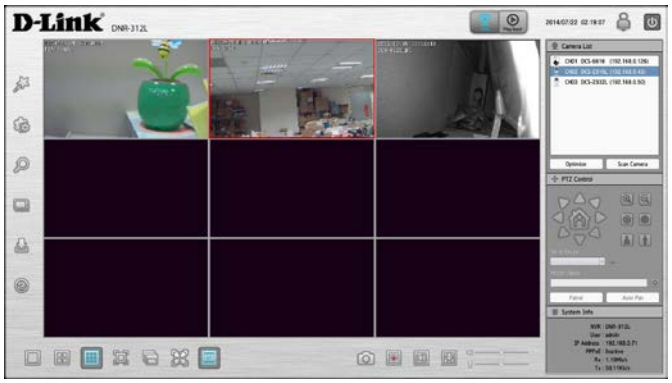
Step 1: Click the LIVE button at the top of the screen.

Step 2: Select a camera(s) from the camera list on the right and then drag it to the location to where you want it to be displayed.

Step 3: You can change the video display position by dragging it to another position.

Notes

1. The selected video will be marked with a red line.
2. Enable EPTZ: Right-click on the video and click on ***Enable EPTZ***. Click the + or – button to zoom in or zoom out the view. The lower right square flashing on the video grid indicates the correspondent view of the camera.
3. If the camera supports PTZ, you can control the selected camera from the PTZ panel.
4. If the camera supports audio, you can check ***Enable Audio*** from the right-click menu and listen to live audio of this channel.
5. Snapshot: Right-click on the video and select the snapshot function to capture a specific video image immediately.
6. Right-clicking on the video will show the option to ***Full Screen***. Press the ESC button on the keyboard to return to normal display.
7. Swap: Right-click on the video and select Swap to display a different video channel.



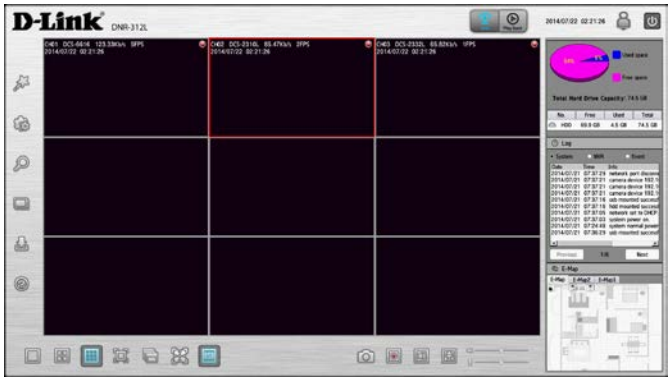
Single Screen: User can select to view single camera.

View as 2x2: View four cameras on one screen.

View as 3x3: View nine cameras on one screen.

Full Screen: Select to display the video with full screen. Press ESC button on the keyboard can return to normal display.

Glance: Activate auto scan to rotate the channels/cameras on the display screen.



Actual Size: Switch the video to the actual size or fill the window.

OSD: Display the information on the video.

Snapshot: Click to take a snapshot and save it to an album

Manual record: Click to enable or disable manual recording

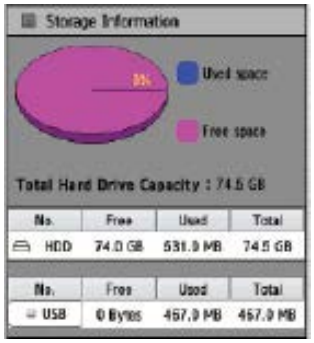
Speaker On/Off: Turn the speaker on or off.

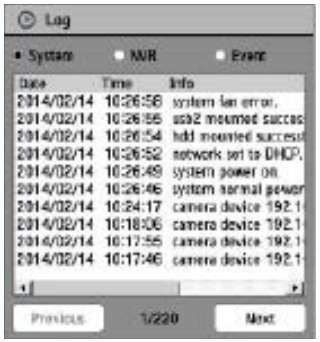
Mic On/Off: Turn the microphone on or off.

PTZ Control: You can control the camera view by utilizing the PTZ (pan, tilt, and zoom) camera control panel to adjust the camera angle. This function is only available with cameras that support the PTZ function.

System Info: Displays Storage Information, such as HDD and USB drive information.

Log: Displays the System, NVR, and Event logs.



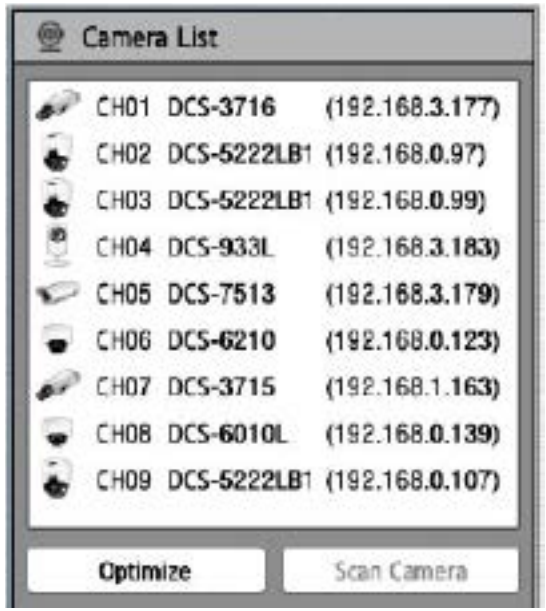


E-Map: Check E-map to see camera(s) location and connection status.

Camera List: Displays the cameras connected to the NVR and their respective IP addresses.

Optimize: Click Optimize to fine tune your camera settings for smoother live viewing and video recording.

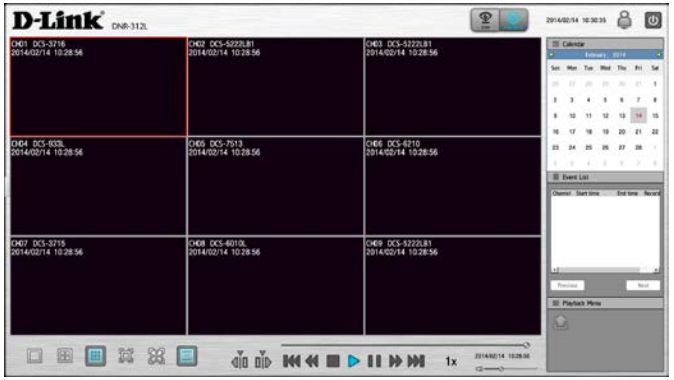
Scan Camera: Click **Scan Camera** and the NVR will use Admin as the user name and a blank password to automatically add any network cameras from the same local area network.



Playback

This section shows the NVR's recorded video feeds. You may select any of the available icons listed below to play back, adjust, and export the recorded video streams.

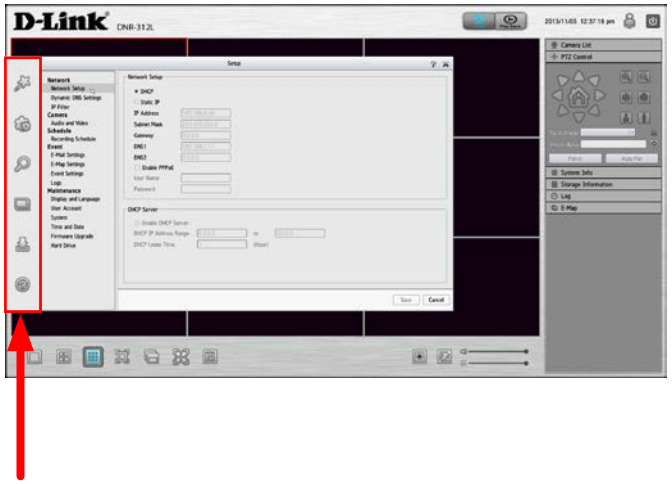
	Display Single feed	Use this button to switch to a single camera feed in the live video display area.
	Display 2 x 2 feed	Use this button to switch to view four cameras in the live video display area.
	Display 3 x 3 feed	Use this button to switch to view nine cameras in the live video display area.
	Actual Size	Use this button to display the recording in its original resolution.
	Full Screen	Use this button to switch to a full screen view of the live video feed.
	On Screen Display Settings	Use this button to configure the various settings for the on screen display.
	Play/Stop/Pause	Select a camera/video and click this button to play/ stop/pause a particular channel.
	Speed	Click to increase or decrease the playback speed.
	Cue in/Cue Out	Click the Cue In or Cue Out button to set the period for Save Video.
	Reverse/Step Forward	Click to pause the playback and move to next frame or last frame.



Menu Bar

By moving your mouse to the left side of the screen, the Menu bar will appear. You can click the icons in this bar to access different sections, which are described in the following pages.

	Setup Wizard	This will start the Setup Wizard, which will help you set up and configure the basic settings of the NVR. Refer to "Setup Wizard" on page 44.
	Setup	This will open the settings page of the NVR, where you can manually configure the different settings and features of the device. Refer to "Setup" on page 45.
	Camera Search	This will let you automatically search for new cameras to add to the NVR. Refer to "Camera Search" on page 62.
	Album	This will open the album, where you can see all the snapshots taken by the NVR. Refer to "Album" on page 63.
	Backup	This will let you back up the recordings stored on the NVR to a USB drive, Samba server, or FTP server. Refer to "Backup" on page 64.
	Help	This shows more information about using the NVR. Refer to "Help" on page 66.

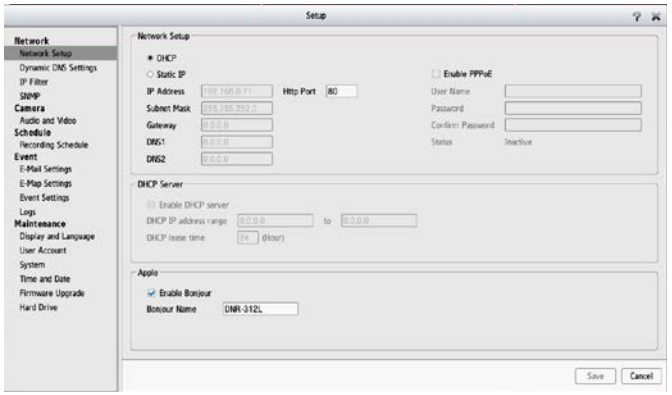


Setup Wizard

The Setup Wizard, helps you set up and configure the basic settings of the NVR. Select the language you want to use, then click the **Next** button to start the wizard.

Setup
Network
Network Setup

Network Setup lets you configure how you connect the NVR to the internet.



DHCP: Select this connection if you have a DHCP server running on your network and would like a dynamic IP address to be automatically updated to your NVR.

Static IP: You may obtain a static or fixed IP address and other network information from your network administrator for your NVR. A static IP address will simplify access to your NVR in the future.

IP Address: The fixed IP address.

Subnet Mask: The default value **255.255.255.0** is used to determine if the destination is in the same subnet.

Gateway IP Address: The gateway forwards frames to destinations in a different subnet. Invalid gateway settings may cause the failure of transmissions to a different subnet.

DNS1: Primary domain name server that translates names to IP addresses.

DNS2: Secondary domain name server to backup the primary one.

Enable PPPoE Enable this setting if your ISP (DSL service) is using PPPoE. You may already have a Username and Password provided by your ISP, or you may need to contact your ISP. The connection status will be determined automatically by the system.

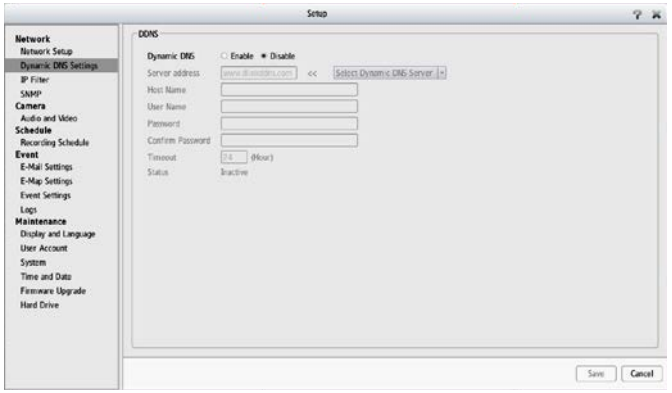
DHCP server: Enable or disable the DHCP server. If your network doesn't have a DHCP server, enable this feature for easier local network setup.

Enable Bonjour: Enable the Bonjour service to allow users to discover the DNR-312L with Apple devices.

Bonjour Name: Enter the name of the device that will be used to identify the DNR-312L when using Apple devices.

Dynamic DNS Settings

Enable this option only if you have purchased a domain name and registered with a dynamic DNS service provider. The following parameters are displayed when the option is enabled.



Server Address: Select a dynamic DNS service provider from the pull-down list.

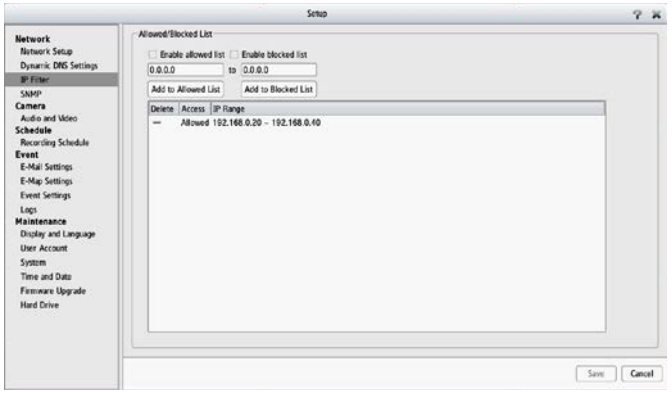
Host Name: Enter your host name. For example: myhost.mydomain.net.

Username: Enter the username for your dynamic DNS account.

Password: Enter the password for your dynamic DNS account.

IP Filter

By enabling IP filtering you can allow or block visitors from accessing the NVR. To add IP addresses to the Allowed or Blocked lists, enter the IP address range you want to allow or block into the text boxes, then click on **Add to Allowed List** or **Add to Blocked List**.



Enable Allowed List: Enabling this will allow only the IP addresses in the allowed list to access your NVR.

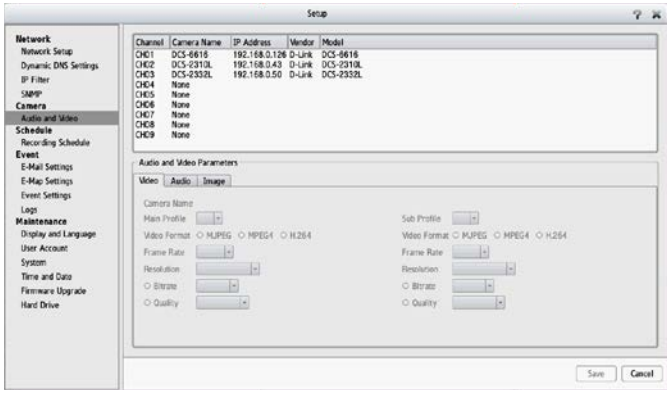
Note: Make sure you enter the IP address of the PC you use to access the NVR before enabling this option, or you may not be able to access it afterwards.

Enable Blocked List: Enabling this will block all IP addresses in the blocked list from accessing your NVR.

Camera

Audio and Video

This section will allow you to configure and modify video, audio, and image settings for each camera.



The Video tab has the following settings:

Name: The name of the camera is displayed here.

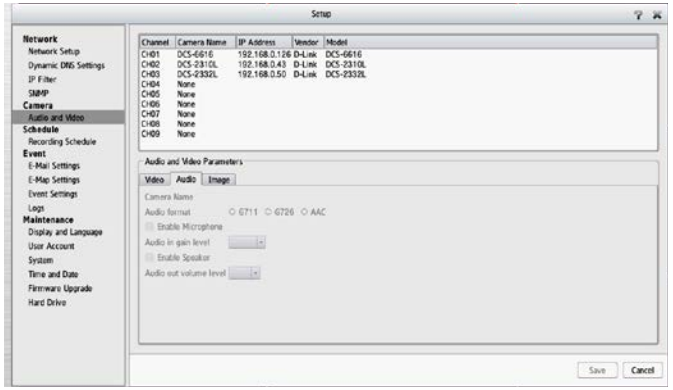
Video Format: Select the video format.

Frame Rate: Select the frame rate. 15 is the default.

Resolution: Select the resolution. 1280 x 800 is the default.

Note: The system will adjust the frame rate automatically based on the maximum frame rate which the camera can support.

Quality: Select the bit rate and fixed quality.



The Audio tab has the following settings:

Audio Format: Select the audio format.

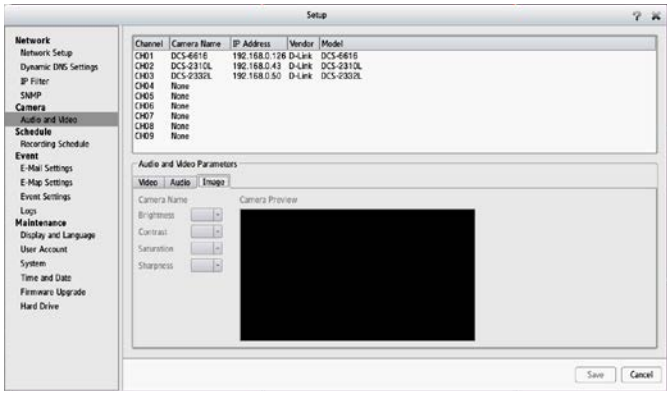
Enable Microphone: Turn the microphone on and off.

Audio in Gain Level: Select the audio in gain level.

Enable Speaker: Enable audio out on the camera (if supported).

Audio Out Volume Level: Adjust the volume.

The Image tab has the following settings:



Brightness: Adjust the brightness.

Contrast: Adjust the contrast.

Saturation: Adjust the saturation.

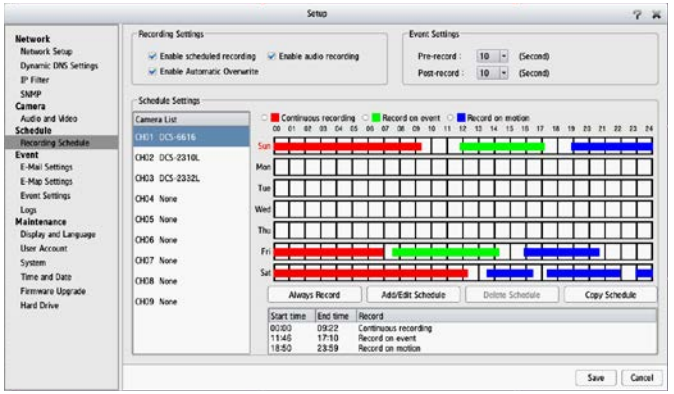
Sharpness: Adjust the sharpness.

Schedule

Recording Schedule

Once cameras have been set up, a highly configurable scheduling system allows for continuous recording or recording during specifically allotted time frames. Each camera can be set to record independently at preset intervals. It also provides event recording based on specific triggers. The NVR also can be configured to overwrite the oldest data automatically when Hard Disk space runs out, allowing for continuous and uninterrupted recording. You can specify the number of days the recording should be kept (within the limits of the Hard Disk capacity).

Set Recording Mode



Enable Schedule Recording: Record according to a schedule.

Enable Automatic Overwrite: Select this option to automatically empty disk space when the disk space is full. This will overwrite the earliest recorded video with the latest video one day at a time.

Enable Audio Record: Set the duration to store recorded video clips. After the duration, the clips will be purged.

Set Recording Schedule

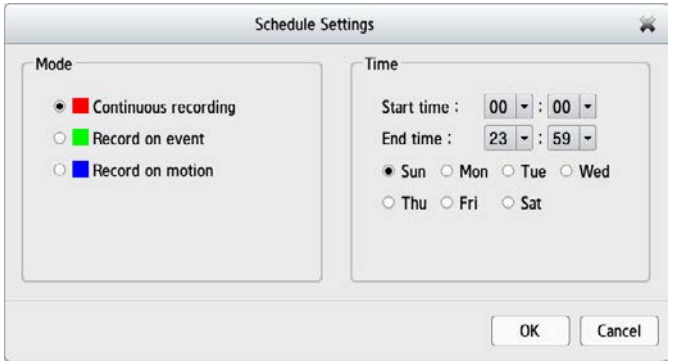
Always Record: Click this button to enable always on recording for all IP cameras.

Add/Edit Schedule: Select a camera from the camera list, and click **Add/Edit Schedule** to create a new schedule for the selected camera.

Delete Schedule: Select a camera from the camera list, and click **Delete Schedule** to delete the schedule for the selected camera.

Copy Schedule: Select a camera from the camera list, and click **Copy Schedule** to create a duplicate schedule.

Set Recording Schedule Configuration



1. Select one of the cameras from the list and click on **Add/Edit Schedule**.
2. Choose a recording mode, the available options are **Continuous Recording**, **Record on event**, and **Record on motion**.
3. Enter the desired **Start time** and **End time**, and choose a day of the week that the recording function will be active.
4. Press the **OK** button to save the new schedule.

Note:

- When configuring the Motion Detection event, be sure to set up the motion detection function on your camera first.
- After changing the motion detection settings of your camera, be sure to disconnect the camera from the NVR and then re-connect it to update all new changes.
- Alternatively, you can drag the time bar to change the recording period. The red bar represents the **Continuous Recording** feature and the blue bar represents the **Record on motion** feature.

Event
E-Mail Settings

If an an event occurs, such as motion detection, or hard disk failure, you will receive an e-mail notification. Here you can configure your e-mail notification settings.

Sender Email Address: Input the sender's e-mail address.

Server Address: SMTP (Simple Mail Transport Protocol) server IP address.

User Name: Enter the user name for your SMTP account.

Password: Enter the password for your SMTP account.

Port: Enter the port used by your SMTP server. Tick the checkbox here this if your e-mail server uses SSL protocol.

Test: Click this button and the system will send a test mail to verify whether your settings are correct.

Adding Contacts

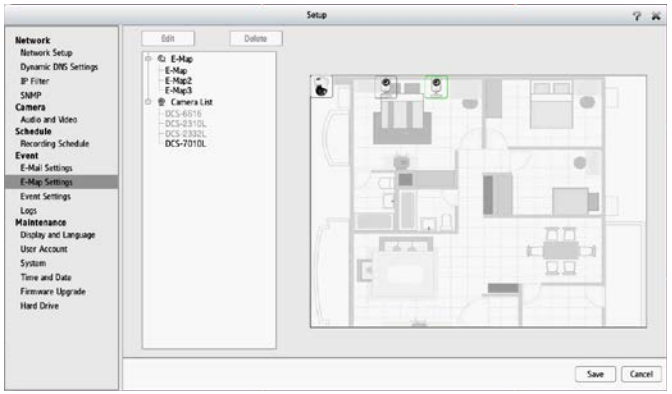
Step 1: Insert the name of a new contact.

Step 2: Insert the e-mail address of this new contact.

Step 3: Click **Add**.

E-Map Settings

The E-Map lets you view where cameras are placed via a blueprint of your home or business. When an event occurs, the E-map event indicator will show the location of the event. You can upload your E-Map to the NVR. The maximum file size is 20K Bytes in BMP and JPG file format. You can then drag and drop camera icons onto the E-Map indicating camera placement.

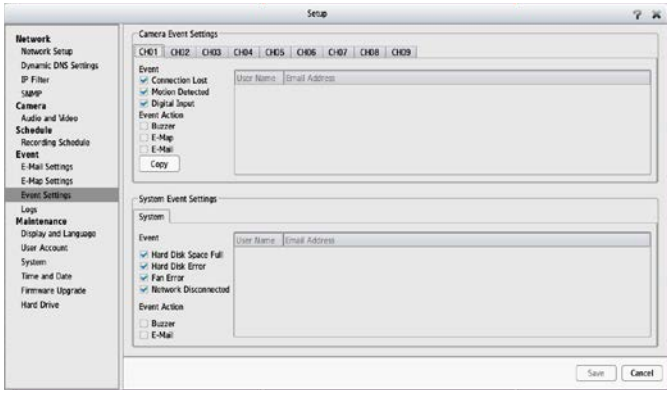


Edit: Upload your graphic map.

Delete: Delete a camera icon from the map.

Event Settings

This page lets you configure what to do when an event is triggered by a camera, such as when motion is detected. The NVR can then perform an action, such as sending an e-mail notification.



For **Camera Event Settings** and **System Event Settings:**

Step 1: Select an event to listen for:

Connection Lost: Alert is sent when connection is lost.

Motion Detected: Alert is sent when motion is detected.

Digital Input: Alert is sent when the signal voltage is above or below a specific threshold.

Hard Disk Space Full: When the Overwrite function is not enabled, the NVR will stop recording when the HDD is full and send an alert.

Hard Disk Error: An alert will be sent if there is an error with the hard disk.

Fan Error: An alert will be sent if there is a fan error.

Step 2: Select an event action:

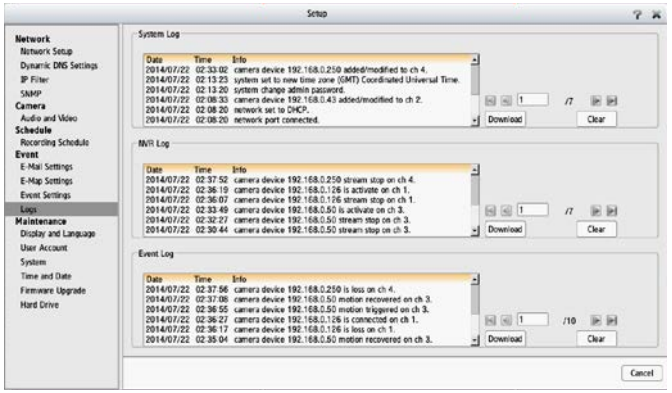
Buzzer: Buzzer will go off as an alert.

E-Map: Select this option to update the camera status on the E-Map.

E-Mail: Select this option to have e-mail sent to a specified SMTP account after receiving a camera event.

Log

This Log function displays the event log information including System, NVR, and event logs. It allows you to check the details of each log and download them to an external USB drive for backup.



System Log: Displays the system log information.

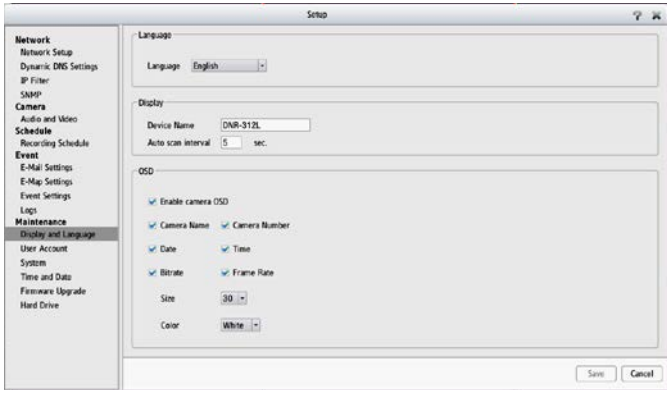
NVR Log: Displays the NVR log information such as when recording stops or the NVR system starts.

NVR Event Log: Displays the event log information such as motion detection or if a camera is disconnected.

Maintenance

Display and Language

This section will show you how to change language, OSD, user account management, date and time adjustment, firmware upgrade and hard drive management for your NVR.



Language: Select the language.

Device Name: Change the device name of the NVR.

Auto Scan Interval: The auto scan feature allows you to monitor and scan the activity on all attached cameras for a specific time.

Enable Camera OSD: Enables or disables the camera's OSD.

Camera Name: Displays the name of the camera on the OSD.

Date: Displays the date.

Bitrate: Displays the bitrate.

Size: Displays the size in pixels.

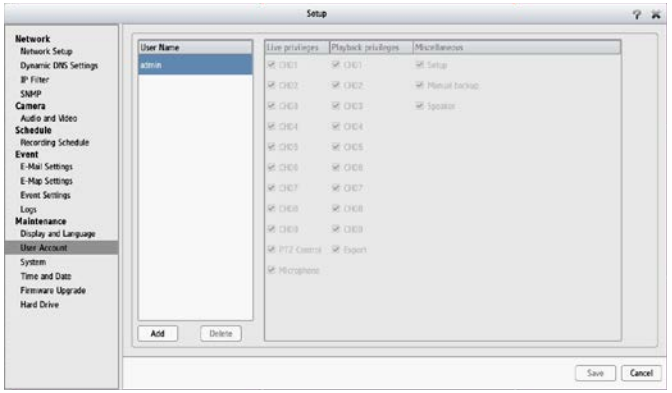
Color: Change the color of camera's OSD.

Camera Number: Displays the camera number.

Time: Displays the time.

Frame Rate: Displays the frame rate.

User Account



User Account enables you to create user accounts to access your NAS device and set user privileges for them.

Adding a New User

Follow the steps to manage existing user accounts and give new users access to the NVR. Management options include adding and deleting users, and allowing access rights to users. You can also change admin and user passwords.

Step 1: Input the new user name.

Step 2: Input the password. Type the password again to confirm.

Step 3: Select the live view cameras and **PTZ/ IO Control** functions which this user can access.

Step 4: Select the playback channels and **Backup Data** function which this user can access.

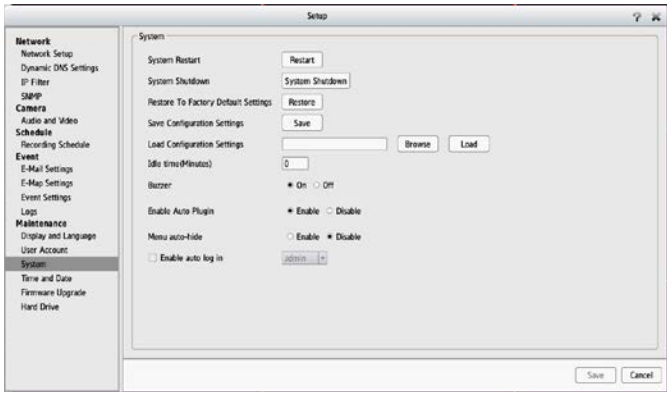
Step 5: Click **Finish** to create a new user.

The Administrator account can configure all functions of the NVR. This account cannot be deleted. The default password for **admin** is blank. Setting a password after the first login is strongly recommended. If the administrator password is lost, you may hold the reset button on the rear panel of the device to reset the NVR to factory defaults.

Note: Resetting the device will erase all previously saved settings.

System

You can save the NVR configuration to a file and restore it when necessary, such as restarting the NVR in the event of a crash. Reset the NVR to restore all configurations to factory default.



System Restart: If the NVR is malfunctioning or crashes unexpectedly, click **Restart** on the NVR. Restarting the NVR will take about ninety seconds.

System Shutdown: This will shut down the NVR.

Restore to Factory Default Settings: This will reset all settings back to the factory defaults.

Save Configuration Settings: All the configurations can be saved as a file to the specified location. Click **Save** to save the file.

Load Configuration Settings: You can restore the configuration file after resetting to factory default file. Click **Browse** to select the configuration file and restore it by clicking **Load**.

Idle Time (Minutes): When the adminstrator enters all the Setup pages(except the Live Video and Playback Page), the NVR will keep track of the idle time when the user is not active. If this inactive period exceeds the specified limit, the user will be logged out and will have to log in again for security purposes. You can change the idle time limit here.

Buzzer: Enable or disable the buzzer. This is an audible alarm that sounds off when an event is triggered.

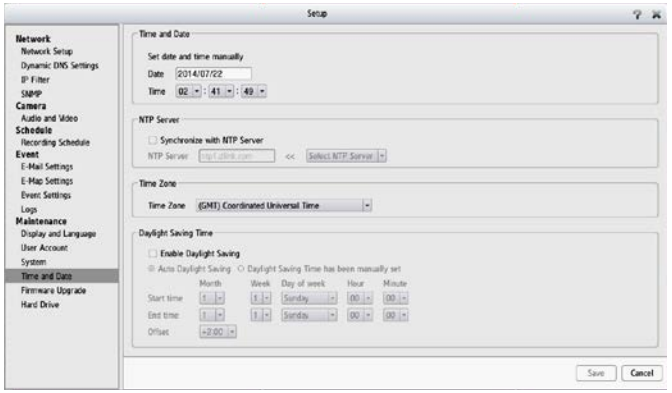
Enable Auto Plugin: Enable or disable auto plugin. Enabling auto plugin allows the NVR to automatically detect any connected cameras.

Menu Auto Hide: Enabling this option will allow the menu to auto-hide when not in use.

Enable Auto Log in Enabling this option will cause the system to automatically log in with the specified user account.

Time and Date

Configure time and date settings here.



Manually Set the Time and Date: Enter the complete time and date settings manually. Click **Save Settings** to apply the settings.

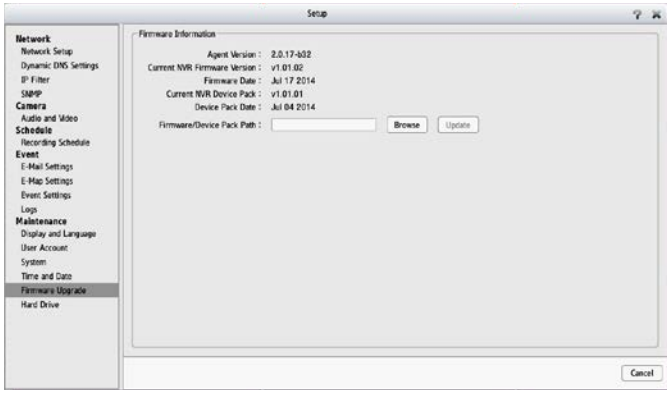
NTP Server: Select or enter an NTP Server here. An NTP Server is a server on the Internet that maintains time. The NVR will contact the server you entered and receive the correct time. Click Save Settings to save your entries.

Time Zone: Select your time zone from the pull-down list. Click **Save** to apply the settings. There are three choices for setting the time.

Daylight Saving Time: Check the box to enable daylight savings time. You can select enable auto daylight saving, or manual daylight saving to manually set the month, week, day, hour and minute or when daylight saving starts.

Firmware Upgrade

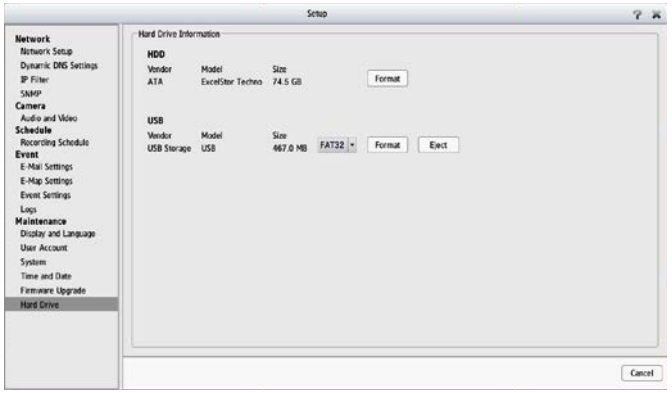
The device firmware and device pack can be upgraded from this page. To update the firmware, you must save the firmware update to a USB drive, then connect it to the NVR's USB port. Click **Browse** to search the USB drive for the firmware update file. Click **Update** to upgrade. The new version number will be displayed. You can check for firmware updates on the D-Link Support Page.



Hard Drive

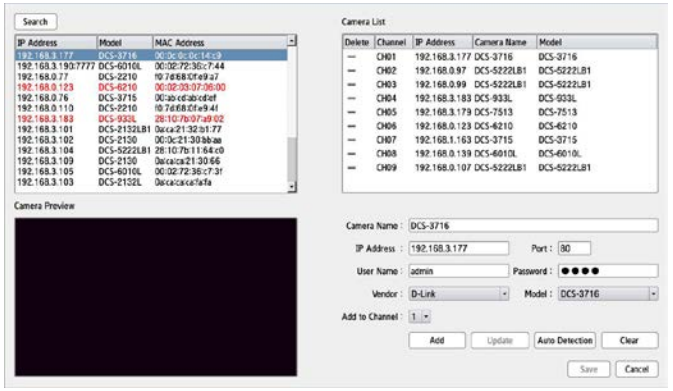
You can format the HDD and USB drives in this section, as well as eject the USB drive. Formatting the HDD and USB drive will erase all data on the drive.

Note: Do not eject the USB drive without clicking eject first, or the files on the USB drive may become damaged.



Camera Search

The Camera Search function lets you automatically add cameras to the NVR. You can then view camera information and preview the camera's feed. To add cameras follow the steps below.



Step 1: Click **Search** to search for network cameras. The system will list all the available cameras at this moment. Click the ✚ icon to add a camera to your camera list. If the cameras are already added, it will be marked in red.

Step 2: After clicking the icon, the camera setting page will pop up. Click on the camera that you want to add.

Step 3: Enter the camera name, user name, and password of the camera.

Notes

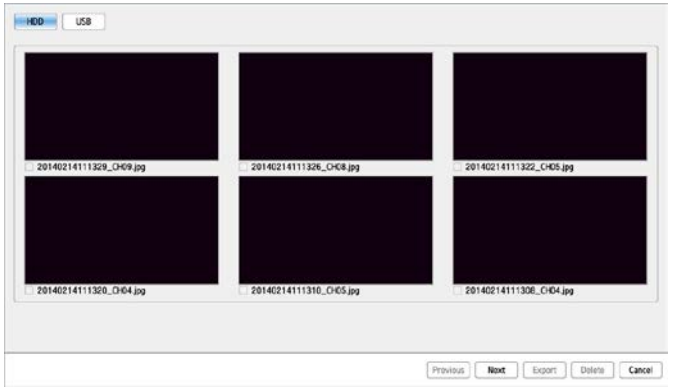
- Some cameras will limit the login authority to the administrator only.
- To add cameras without the UPnP function, please go to the camera Setup menu and enter the IP address manually.
- You may not be able to see all the cameras on your first search. It may take a moment for the devices to respond to the UPnP request. Please click ***Search*** again if the cameras are not immediately displayed.

Step 4: Click **Add** to add the selected camera.

Step 5: After clicking **Add**, the updated information will be displayed in the camera list. Repeat steps 2 through 5 to add other cameras to your list.

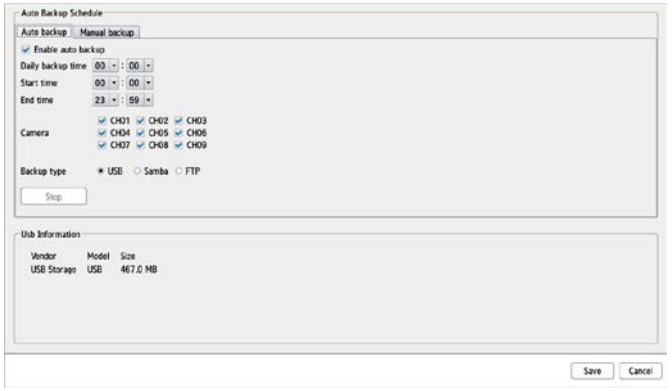
Album

If you have taken screenshots from the live page, you can view them in the Album. You can also export or delete screenshots from this page.



Backup

Unlike the Save Video function, the Backup function will save all the recorded videos during the time period you select, instead of a single video clip. You can set the NVR to make daily backups by using Auto Backup, or you can make a single backup immediately by using Manual Backup.



Enable auto backup: Check the Enable option to backup your recording data according to a daily schedule.

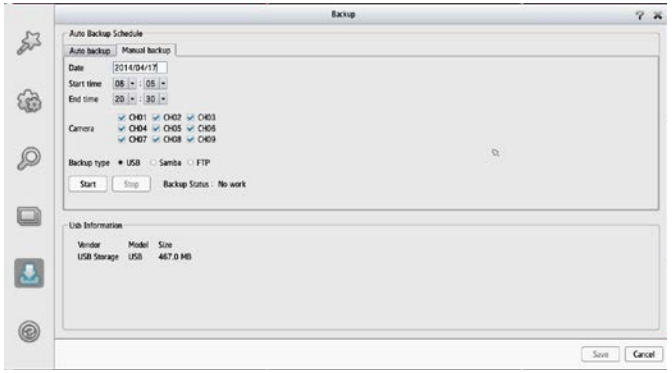
Daily backup time: The daily scheduled time to start the backup process.

Start/End time: Select a time period of recordings to back up.

Camera: Select the cameras that you want to back up the recordings of.

Backup Type: You can select whether to back up to a USB drive, a Samba server, or an FTP site.

If you choose Manual Backup, you will see the following settings:



Date: The daily scheduled time to start the backup process.

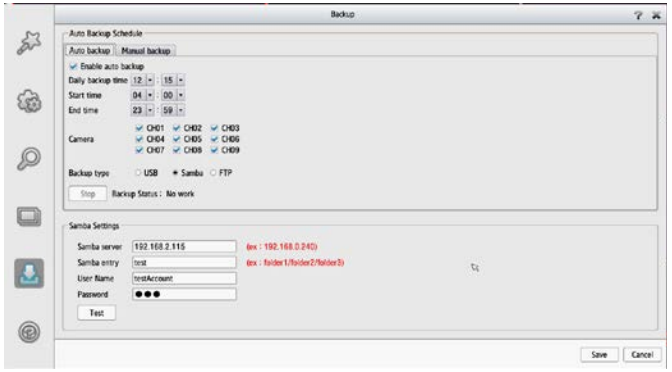
Start/End time: Select a time period of recordings to back up.

Camera: Select the cameras that you want to back up the recordings of.

Backup Type: User Name: You can select whether to back up to a USB drive, a Samba server, or an FTP site.

Start/Stop: Click Start to start a manual backup using the settings specified, or click Stop to stop a currently running backup.

If you choose Samba as the backup type, you will see the following settings:



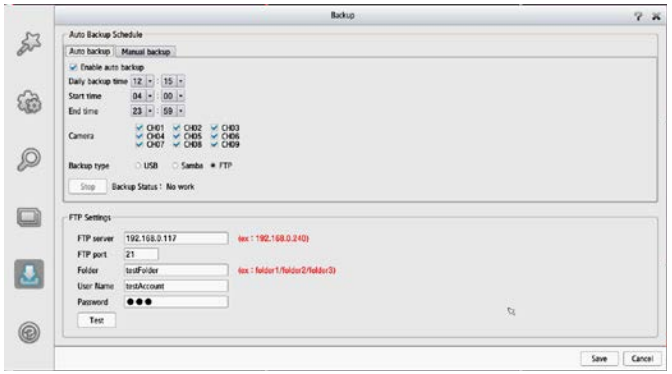
Samba server: Enter the address of your Samba server.

Samba entry: Enter the folder path for the Samba server that you want to back up your recordings to.

User Name: Enter the username for your Samba server account.

Password: Enter the password for your Samba server account.

If you choose FTP as the backup type, you will see the following settings:



FTP server: Enter the address of your FTP server.

FTP port: Enter the port used by your FTP server.

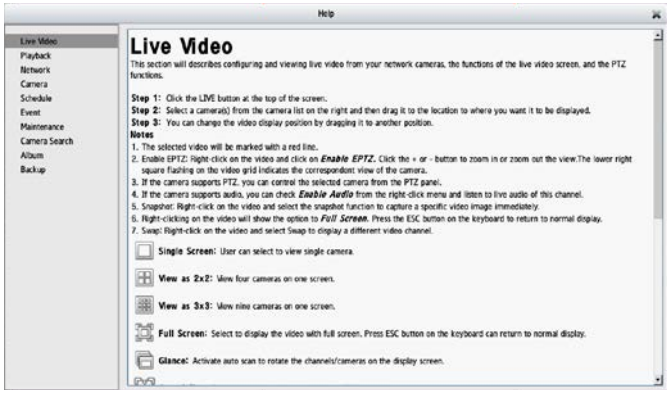
Folder: Enter the folder path for the FTP server that you want to back up your recordings to.

User Name: Enter the username for your FTP server account.

Password: Enter the password for your FTP server account.

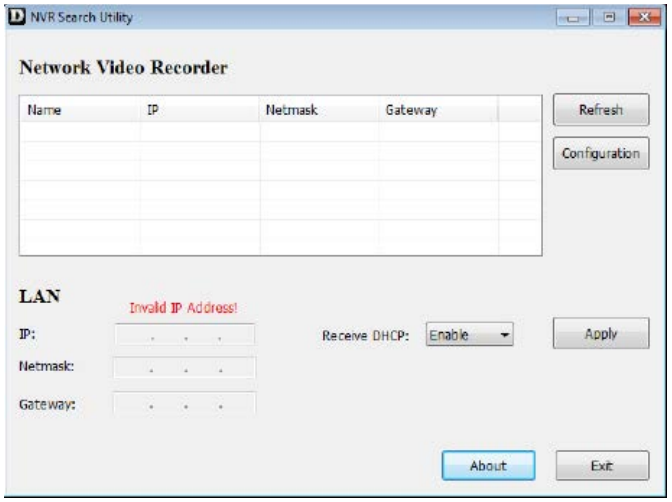
Help

The NVR Help page provides a list of support topics.



Applications
D-Link NVR Search Utility - Windows

In Windows, you can insert the CD and click NVR Search Utility to run another useful setup tool. When powered on, during the initial boot sequence, the device will wait to be assigned an IP address via DHCP. If it does not receive a DHCP-assigned IP address, the Auto-IP process will assign a 169.254.xxx.xxx address to the device. If you want to change the IP address before logging in, or are unable to connect to the NVR IP address, you can use the NVR Search Utility provided on the product CD to locate the device on your network and make any needed changes.



Network Video Recorder: The D-Link NVR Search Utility displays any NVR devices it detects on the network.

Refresh: Click to refresh the device list.

Configuration: Click Configuration to access the Web-based configuration of the NVR.

LAN: Configure the LAN Settings for the NVR.

Receive DHCP: Select Enable to use DHCP for your LAN IP settings, or Disable to use static IP.

Apply: Click Apply to save and activate the changes to the LAN Settings.

About: Click About to view the software version of the NVR Search Utility.

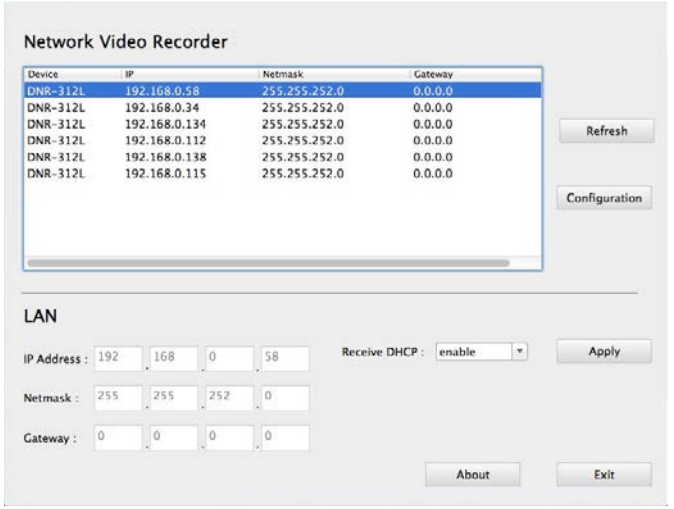
Exit: Click Exit to close the utility.

Select a device from the list and click Configuration. This will launch the computer's default web browser and direct it to the IP address listed for the device. Make sure the browser is not configured to use a proxy server.

Note: The computer used to access the NVR web-based configuration manager must be on the same subnet as the NVR. If your network is using a DHCP server and the computer receives IP settings from the DHCP server, the NVR will automatically be in the same subnet.

D-Link NVR Search Utility - Mac

Insert the CD, go to the CD directory, then enter the Mac Utility folder. Click the NVR Search Utility file to run this useful setup tool. When first powered on, during the initial boot sequence the device will wait to be assigned an IP address via DHCP. If it does not receive a DHCP-assigned IP address the Auto-IP process will assign a 169.254.xxx.xxx address to the device. If you want to change the IP address before logging in or are unable to connect to the NVR IP address, you can use the NVR Search Utility provided on the product CD to locate the device on your network and make any needed changes.



Network Video Recorder: The D-Link NVR Search Utility displays any NVR devices it detects on the network.

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Configuration: Click **Configuration** to access the Web-based configuration of the NVR.

LAN: Configure the LAN Settings for the NVR.

Receive DHCP: Select **Enable** to use DHCP for your LAN IP settings, or **Disable** to use static IP.

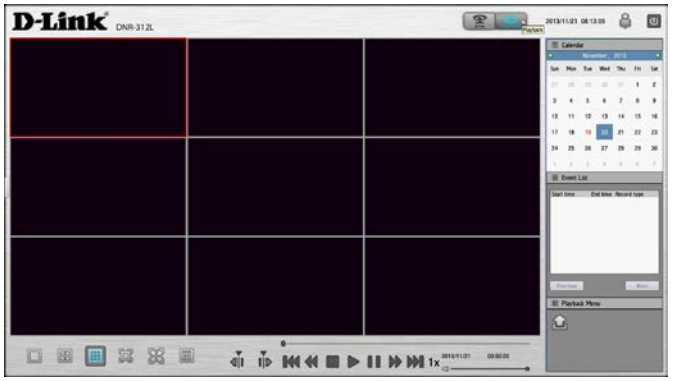
Apply: Click **Apply** to save and activate the changes to the LAN Settings.

About: Click **About** to view the software version of the NVR Search Utility.

Exit: Click **Exit** to close the utility.

Playback Manager

This feature allows you to search and play back recorded video.



Play Recorded Video

Click the **PLAYBACK** tab at the top of the menu.

Click the day highlighted in RED on the calendar.

The **View Recorded Files Window** will show information about the available video clips. Select the date you would like to find the video records of.

Highlight the video records that you would like to review.

Click the **OK** button.

Play

Stop

Select a camera/video and click this button to play/stop/pause a particular channel.

Step forward

Step backward

Fast forward

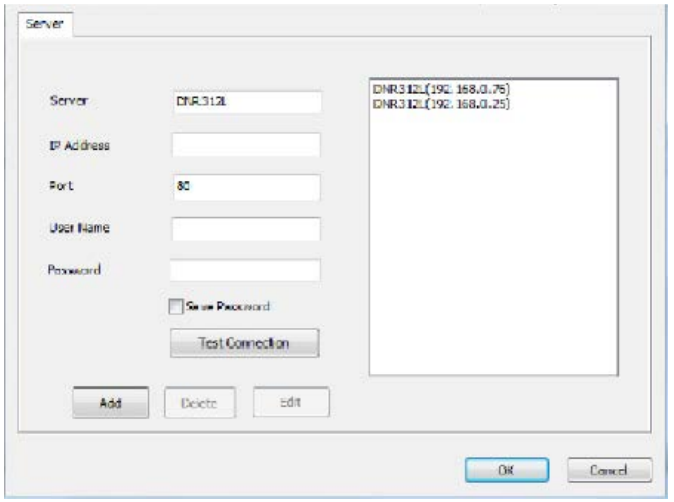
Rewind

Set the start point of the export file.

Set the end point of the export file.

Remote Backup

You can run the remote backup application to back up your files. Run the application by going to **Start** > **Programs** > **D-Link** > **DNR-312L** > **Remote Backup**.



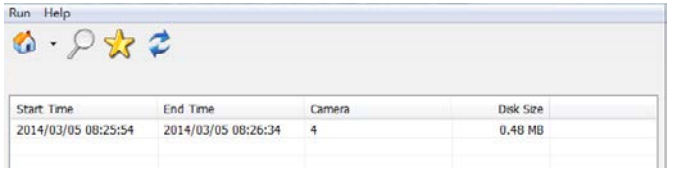
Step 1: Input the IP address of your unit.

Step 2: Input the user name.

Step 3: Input the password and click **OK**.

Step 4: Click **New Period**.

Step 5: Select the record date.



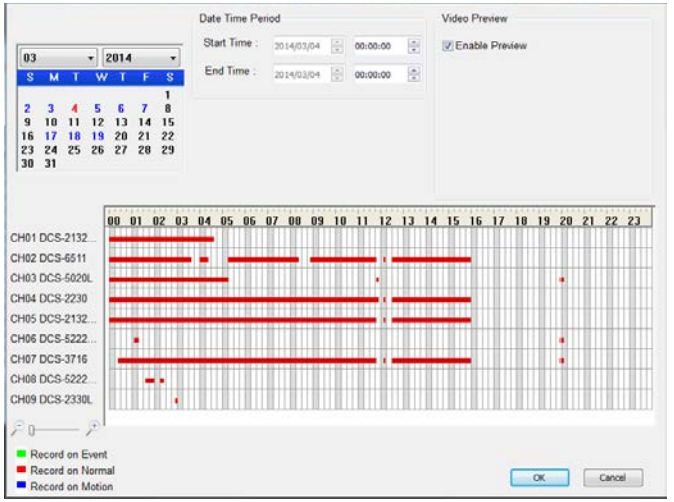
Step 6: Set the **Start Time** and **End Time** you would like to back up (or highlight the video records that you would like to back up). The time period specified cannot exceed 24 hours.

Step 7: Select the cameras you would like to back up and click **OK**.

Step 8: Select the time slot which you would like to back up.

Step 9: Click **Backup**.

Step 10: Select the location where you would like to save the backup data.

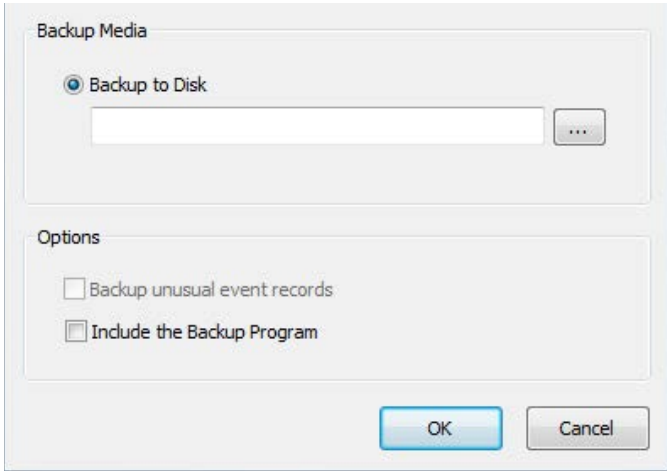


Step 11: Check the **Include the Backup Program** option, which will add a playback application into the backup folder.

Step 12: Click **OK**.

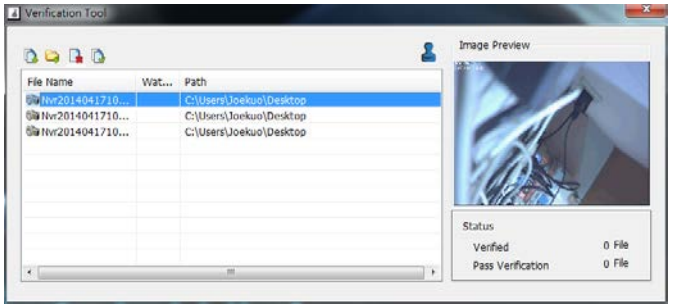
Select the device from the list and click **Configuration**. This will launch the computer's default web browser and direct it to the IP address listed for the device. Make sure the browser is not configured to use a proxy server.

Note: The computer used to access the remote backup application must be on the same subnet as the NVR. If your network is using a DHCP server and the computer receives IP settings from the DHCP server, the NVR will automatically be in the same subnet.



Verification Tool

The Verification Tool verifies whether the data created by the system has been tampered with. It's the process by which a digital watermark (a digital signature) is added to each recorded video frame to ensure its authenticity.



There are two types of data that can be verified by the Verification Tool:

1. Video files (.avi, .asf)
2. Image files (.bmp, .jpg)

Add File: Add a single file to the list for verification.

Add Folder: Choose a folder with multiple files to list for verification.

Remove File: Remove indicated file(s) from list.

Select All: Select all files in the list for verification.

Note: Choose the file type first before selecting files.

Troubleshooting

Replacing a failed disk drive

If a disk drive fails, the Disk Status LED will turn red. When replacing a failed disk drive, be sure to use a new drive of the same or slightly greater capacity.

Step 1: Power off the NVR.
Step 2: Open the unit's cover.
Step 3: Pull out the failed disk drive.
Step 4: Install a new disk drive into the slot.

If you forget the admin password for the device

If you forget the password, you can reset the device, which will reset the password for the **admin** account to its default(blank). Please note that this will reset all settings on the device back to the factory defaults, and it may cause data corruption; it is highly recommended that you back up your recorded data before resetting your device. To reset the device, make sure it is turned on then press and hold the reset button for 10 seconds until the Power LED flashes three times. The Administrator password will now be blank.

If you cannot log in to the NVR using Internet Explorer

Check the settings of your anti-virus software to make sure it isn't blocking access to the NVR web interface.

If you cannot see the complete web interface using Internet Explorer

If you cannot see the complete page of the system when using Internet Explorer, the ActiveX installation process may not be complete.

Step 1: Open Internet Explorer and connect to your NVR.
Step 2: The browser will ask whether to install ActiveX.
Step 3: Click the upper bar to begin the installation process.
Step 4: Click **Install** to complete the process.

Technical Specifications

Firmware Specifications

OS

+ Linux

CAMERAS SUPPORT

+ Supports all D-Link network cameras. Includes support for auto-discovery and up to 3 megapixel resolution.

RECORDING PERFORMANCE

First video profile: H.264 at 720p at 270 fps
Secondary video profile: H.264 at VGA at 135 fps

CAMERA SEARCH

+ UPnP

AUDIO & VIDEO RECORDING

+ Synchronized audio & video recording.

COMPRESSION FORMAT

+ H.264, MPEG-4, M-JPEG (depend on the Network Cameras)

VIDEO SETTING

+ Resolution, quality, frame rate, enable audio, image parameters

RECORDING TYPE

+ Record by schedule, manual record and event recording (motion detection from camera)

REMOTE LIVE VIEW

+ Supported via IE browser (Max. 9 simultaneous channels)
+ Supports mydlink portal via IE or other browsers (Max. 4 simultaneous channels)

REMOTE LIVE VIEW CONTROL

+ Live view, preset/go, patrol, focus, PTZ functions, snapshot, full screen, digital zoom, e-map, multiple views (1/4/9) with duplicated camer

REMOTE PLAYBACK

+ Supported via IE and NVR client
+ Playback system with timeline GUI, search by event, area, cameras, date and time
+ IE & NVR client support 9 channel playback
+ Digital zoom in to specific area

REMOTE PLAYBACK CONTROL

+ Playback with normal, fast forward/rewind, and step forward/rewind

OVERWRITE RECORDING

+ Auto recycling when disk storage is full

FILE EXPORT

+ Export videos to AVI or ASF file
+ Export images to BMP or JPG file (only remote support ASF export)

USER ACCOUNT

+ Additional accounts can be created to allow user access to the system, and specify authorization for the camera channels, PTZ, etc.

DDNS

+ D-Link DDNS server support

SYSTEM TIME

+ Set the system time (D-Link NTP, input time)

REMOTE BACKUP

+ Remote software can back up raw data to redundant storage
+ Auto back up video from the previous day to the FTP server

SYSTEM STATUS

+ System status
+ EMAP support

NETWORK SERVICE PROTOCOLS

+ IPV4, ARP, TCP, UDP, ICMP
+ DHCP Client
+ NTP Client (D-Link)

+ DHCP Server, Client
+ DNS Client
+ DHCP Server, Client
+ DDNS Client (D-Link)
+ SMTP Client
+ HTTP Server
+ PPPoE
+ UPnP
+ IP filtering

USER INTERFACE
+ HTTP Web browser - Internet Explorer® 7, Firefox® 12, Chrome 20, or Safari® 4
+ NVR Search Utility

Hardware Specifications

STANDARDS
+ IEEE 802.3/u/z
+ Auto MDI/MDI-X

HARD DISK[1]
+ SATA I, II, III
+ Reformat Disk

TWO RESET MODES
+ Reset firmware GUI button
+ HW reset button (press for 10 seconds)

FLASH ROM
+ 128 MB

RAM
+ 1024MB DDRIII

NIC
+ Gigabit Ethernet LAN port (10/100/1000 Mbps)

I/O PORTS
+ RJ45 port
+ DC-in jack
+ USB port for mouse device and USB flash drive
+ 3.5mm Audio in/out ports

POWER ADAPTER
+ DC 12 V/3 A

RESET BUTTON
+ Reset to factory default

POWER CONSUMPTION
+ Max. power consumption: 30W
+ Standby state max. power consumption: 0.337 W

DIMENSIONS (W x D x H)
+ 49.8 (W) x 141.6 (D) x 173 (H) mm (19.6 x 5.57 x 6.81 inches)

WEIGHT
+ 425 grams (0.93 lbs)

OPERATING TEMPERATURE
+ Operating: 0 to 40 ˚C (32 to 104 ˚F)
+ Storage: -20 to 70 ˚C (-4 to 158 ˚F)

HUMIDITY
+ Operating: 5% to 90% (non-condensing)

PACKAGE CONTENTS
+ mydlink NVR with HDMI output
+ Power Adapter
+ Ethernet Cable
+ Quick Installation Guide
+ Power Cable Holder
+ CD-ROM with:
  - Software
  - Product Documentation